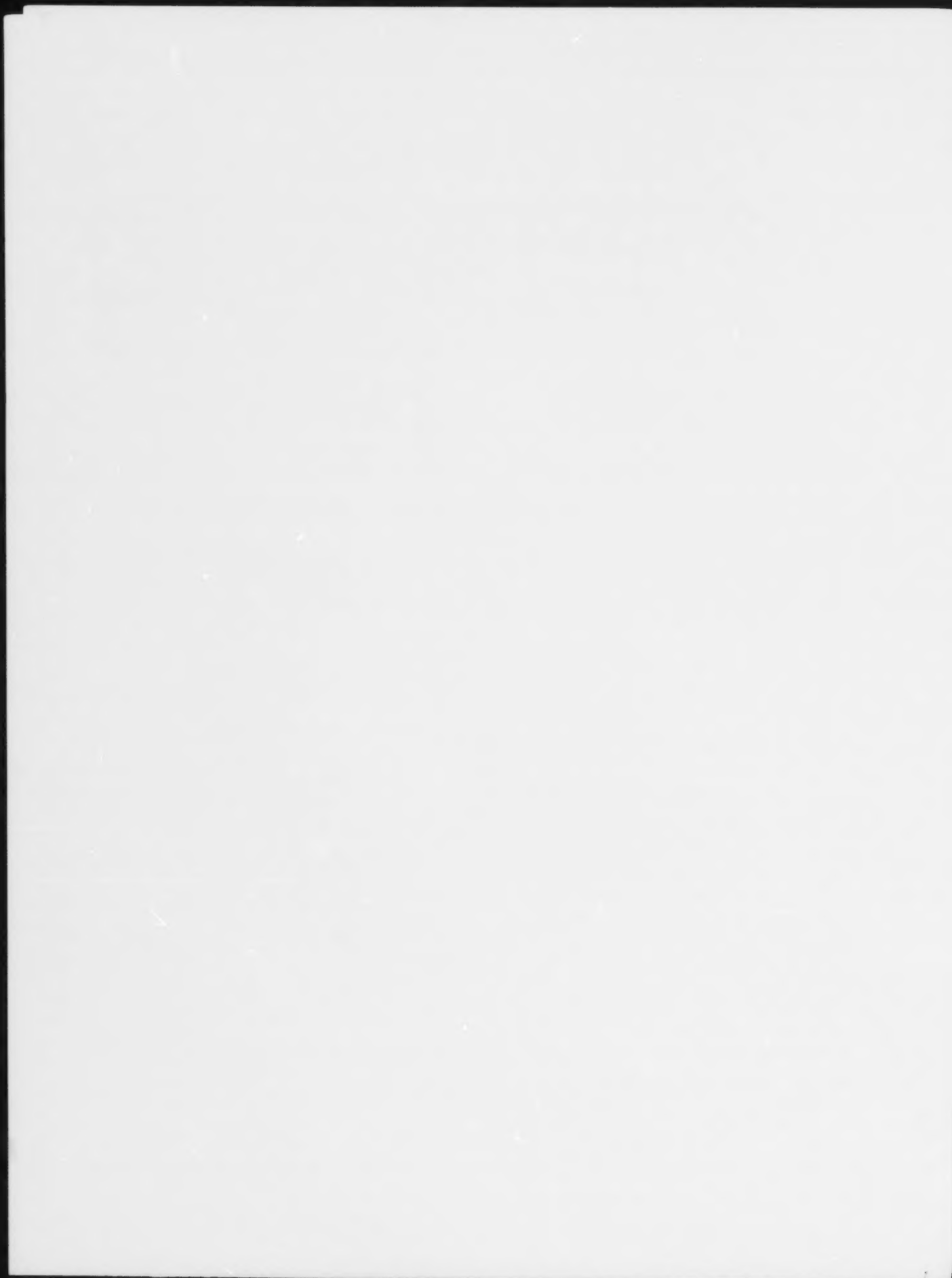

Manitoba 

Annual Report
1988 - 89

Natural Resources



Manitoba



Minister of
Natural Resources

The Honourable George Johnson
Lieutenant Governor of Manitoba
Government House
Winnipeg, Manitoba

Dear Mr. Johnson

I am pleased to present you with this the 58th *Annual Report* of the Manitoba Department of Natural Resources for the fiscal year ending March 31st 1989.

Yours truly,

A handwritten signature in dark ink, appearing to read "Harry Enns". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Harry Enns
Minister





Deputy Minister of
Natural Resources

The Honourable Harry Enns
Minister of Natural Resources
Legislative Building
Winnipeg, Manitoba

Dear Sir:

For the past several years the annual reports of the Department have been, in effect, merely collections of Branch reports under one cover wherein the full impact of departmental thrusts was not immediately apparent nor adequately presented. Therefore, some changes have been incorporated in this annual report to remove some of the shortcomings of previous issues.

Although still structured by Branch, this annual report incorporates the headings in the *Mission and Roles Statements 1989* as subheadings in the Branches' reports. Thus, similar activities that reflect on the Department as a whole can be easily recognised and compared. The tables and graphs of each Branch are identified by an alphanumeric notation, and have been placed together at the end of the report. In addition, certain graphic devices and style changes have been used both to facilitate reference and to enhance the appearance of the report.

It is expected that this restructuring will make it easier to evaluate the Department's performance over the year through concise non-repetitive recording of types of activities under each Branch. However, since this is a first attempt at producing a more effective annual report there may be parts to be re-examined and others where further amendments are required.

Nevertheless, we believe that the changes made to this annual report for the fiscal year 1988-1989 are definitely for the better. I respectfully submit it for your attention.

A handwritten signature in dark ink, appearing to read "Dale Stewart". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Dale Stewart
Deputy Minister

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Section 1

Executive Summary

During the 1988-89 fiscal year, Manitoba Natural Resources continued to provide services in support of its mandate: the economic development of the Province and the enhancement of the quality of life of its citizens. New emphasis was given to this thrust during the year with the initiative to move towards a comprehensive policy of sustainable development. Among the first steps towards this goal within the Department was the drafting of a proposed strategy for the management of water and soil.

The proposed policies were printed in two *Workbooks*, one on water and the other on soil. The *Workbooks* provided the basis for discussion at a series of meetings held in communities throughout the Province. A few meetings remained to be held early in the new fiscal year, following which the proposed policies will be reviewed and revised in keeping with the opinions and wishes expressed by the public. Draft policies for the sustainable development of other resources will also be developed in the near future.

There were many developments of interest during the year involving Manitoba's forests. A total of 981 fires burned over half a million hectares during the year. Fires in early May threatened buildings at Gull Lake and Brereton Lake. Five cottages were destroyed at Brereton Lake despite the efforts of fire-fighters to save them. Lightning storms in mid-June caused another critical fire problem and on June 22nd there were 117 forest fires burning. Total fire suppression expenditures during the year were in excess of \$24 million, the highest on record.

Forest products were exposed to negative market pressures throughout the year. The strengthening Canadian dollar, rising interest rates, a reduced volume of newspaper advertising, and declining housing starts all contributed to a softening of the market. Bucking this trend were strong offshore sales of lumber, pulp and paper, and a shrinking supply of accessible timber. These factors all combined to keep forest product prices fairly stable throughout the year except for kraft paper which increased in price during the year.

Timber revenues dropped to \$2.5 million, a decline of 15% from the previous year. This is attributed to the revision of the Abitibi-Price Forest Renewal Agreement and a small decrease in the number of timber permits issued.

Christmas tree growing in Manitoba took a big step forward this year with the formation of the Manitoba Christmas Tree Growers Association. Approximately 65 new and established growers joined the association.

Action was taken to formulate a Farm Woodlot Program in Manitoba. A survey of woodlot owners was conducted in several areas of the Province to determine interest in woodlot management. A report on the potential market was prepared for the study area.

Dutch elm disease continues to spread along most southern Manitoba rivers. Large increases occurred on the Red and Assiniboine Rivers in and around Winnipeg. The northwestern disease front is located near the village of St. Rose du Lac. From November 1st 1987 to October 31st 1988, the Province removed about 8,000 dead and diseased elm trees. An additional 3,000 decadent elms were removed from the Brandon buffer zone and 1,000 from the Winnipeg buffer zone.

Prospects for a second five-year forestry agreement between Manitoba and Canada look promising, but as of year-end it was still at the discussion stage. The Department is hopeful there will be at least an extension of the agreement for a sixth year if a new agreement is not forthcoming.

A marketing unit was established in the Parks Branch to provide a systematic approach to marketing Provincial Parks. Development began on a three-year marketing plan which will focus on improving visitor satisfaction and increasing public awareness of the Provincial Parks system.

Equestrian facilities were developed in several parks. A horseback-riders' campground in Spruce Woods Provincial Heritage Park was designed with assistance from the Friends of Spruce Woods Inc. Parks staff worked with the Manitoba Horse Council to plan an equestrian games area in Bird's Hill Provincial Park for the 1990 Western Canada Games.

A major review of the ARC sites from St. Norbert through to Netley Creek was begun to make them part of the Provincial Parks system and to establish future use and plans for development. Electrical services were extended to St. Ambroise Provincial Recreation Park and to a number of campsites at Rainbow Beach Provincial Recreation Park. A midsummer windstorm caused heavy damage to the Grand Beach campground which forced the closure of many sites and required emergency clean-up operations.

With an increase in the number of cottagers wishing to install private sewer-and-water systems, the water quality of adjacent lakes and streams became a major concern for both cottagers and the Department. A water-quality enhancement program was initiated in Whiteshell Provincial Park with the inspection and inventory of disposal facilities for cottage sewage and grey water. Improvements were made to a number of sewage lagoons and data was collected for future waste/water treatment. A large refuse-disposal site was developed at Falcon Lake.

Fish Futures, Inc., a non-profit organization, became actively involved in co-operative fisheries management. Two major projects included an ongoing study of the Red River from Lockport to Lake Winnipeg involving a creel census to determine angling pressure and the economic value of the fishery. They also constructed a fish barrier in Cooks Creek to prevent fish die-offs. The *1989 Sport Fishing Guide* was published by Fish Futures in conjunction with this Department. It is the first time a private organization has been involved in this publication.

An experimental six-week winter whitefish fishery was allowed on Cross Bay, Cedar Lake. This was the first time since the early 1960's that commercial fishing occurred on the Bay. Six fishermen from Grand Rapids and six from Easterville harvested 39,759 kg of fish worth an initial value of \$74,865. Whitefish accounted for 82% of the fish harvested, with 62% of the whitefish being in the jumbo-size classification which commands a premium price. An economic assessment of the fisheries impairment of the lower Nelson River that could result from the Conawapa hydroelectric development was completed.

At nearly 800,000 kg the 1988 wild rice crop reached an all-time record for the second consecutive year. All areas of the Province experienced a good crop.

The Habitat Enhancement Land Use Program continued to operate in the R.M. of Shoal Lake. Over 1,200 ha of wildlife habitat were leased through 25 landowner agreements. The program has an objective of protecting 3,600 ha by April 1st 1991.

Manitoba has developed an implementation plan that will cost an estimated \$135 million over 15 years to meet the objectives of the North American Waterfowl Plan. The cost-sharing formula obligates Manitoba to pay approximately 10% of total costs.

The number of Wildlife Management Areas in the Province increased to 69 in 1988 with the creation of ten new ones. Seven of these are in southern Manitoba and total 864 ha in area. The remaining three in the Eastern and Interlake Regions total 85,584 ha. In addition, 1,649 ha were added to six existing W.M.A. in southern Manitoba.

Oak Hammock Marsh Wildlife Management Area attracted some 83,000 visitors in 1989. Out-of-Province visitors to the marsh hailed from 34 countries and 35 States, and from across Canada. In a co-operative venture with the Department of Industry, Trade and Tourism, the Wildlife and Parks Branches began work to establish a major wildlife-viewing industry in Manitoba.

Drought conditions during the summer of 1988 resulted in deer entering the winter in less than ideal condition. A blizzard in early January produced deep snow in parts of southern Manitoba, creating conditions that could have caused starvation among deer. Expenditures of up to \$325,000 were approved for an emergency deer-feeding program and was delivered as a co-operative venture between the Department and private citizens. Approximately 350 people volunteered their time throughout the project and countless others contributed over a shorter term. About 9,000 deer were fed at 150 sites in the southwest and about 5,000 deer at 990 sites in the southeast. Approximately 250 tonnes of feed were consumed.

Manitoba fur production fell to \$2.5 million, approximately half of the previous year's total. The decrease was attributed to a number of factors including an over-supply of pelts because of a carry-over from the previous season, a drop in prices, poor demand for some species such as coyotes, foxes and raccoons, and a severely reduced population of muskrats due to drought conditions. Prices for beaver and muskrat fell so low in the spring it was uneconomic to trap them. Most fur-bearer populations, except muskrat, remained stable.

Manitoba introduced a licensed barren-ground caribou hunting season in the extreme northern area of the Province for the first time in 30 years. This was feasible because of the rapid increase in the size of the Kaministiquia herd. The season was restricted to 150 licences. The licences were distributed through a draw open to all Manitobans, although 70% of the licences happened to go to northerners.

The Pasquia Polder III Project near The Pas is being developed by the Department. It will cost approximately \$2.9 million and will involve the construction of two large pumping stations and approximately 60 km of drains. The project will result in the development of about 95 sq. km of land for agricultural purposes. The project is scheduled over a four-year period.

A letter of understanding was signed in July to undertake a Flood Protection Diversion to provide flood protection from the Boyne River for the town of Carman. Land acquisition for the project was begun and an environmental assessment report submitted. The estimated cost of the total project is \$7 million.

A distribution network for map sales is now well established with 65 outlets throughout Manitoba, north-western Ontario and the northern United States. Through these dealers, and the Map Sales Office in Winnipeg, the total of maps sold rose to 63,000, a 16% increase over the previous year and an all-time record high.

The Surveys Branch and the City of Winnipeg signed a five-year agreement for the co-operative development of integrated surveying and mapping systems within the city of Winnipeg. The Remote Sensing Centre served the needs of more than 1,300 customers. The greatest effort during the year went into the Crop Information System which uses satellite data from wheat-growing areas of Canada and Russia to produce crop forecasts. Also produced was a forest-cover map of Manitoba that was done as a pilot project for the Canadian Forest Service and inclusion in the National Atlas. Its success may lead to a contract for similar mapping of all of Canada.

The Conservation Districts Authority, in co-operation with Manitoba Education, produced a video entitled *Before It's Too Late*. It deals with conservation issues affecting all Manitobans and has received a positive response from audiences. At the end of the year, the Conservation Districts Authority was moved to a newly created government department and is no longer a part of Manitoba Natural Resources.

The 1988-1989 fiscal year presented more than the usual number of challenges, opportunities, problems and successes. There was a feeling of confidence at year-end, however, that the past year may be viewed in retrospect as one which saw the start of numerous programs that will ensure the long-term sustainable development of Manitoba's natural resources.

Section 2

Introduction

Purpose

The purpose of the *Annual Report* is to provide a factual description of the activities and programs of the Department of Natural Resources during the preceding fiscal year. It is not intended to be a promotional tool either for the Department as a whole or for its separate Branches. It is a historical record intended for use by legislators and the public for information about the Department's activities on their behalf.

Then and Now

For the past several years the Department of Natural Resources has prepared annual reports that were in effect collections of Branch reports. Therefore, some changes have been made in this *Annual Report* in an attempt to remedy this situation.

In previous annual reports the contents were arranged according to Branch and then subdivided into their sections and specific programs. This arrangement, however, caused repetition especially when more than one Branch was involved in a particular program or project. Furthermore, since reference to the same activity was mentioned in more than one place in the report, the involvement of another Branch in that same activity was at times overlooked.

Also, to ensure that the *Annual Report* complements related documents, especially the Department's *Mission and Roles Statements 1989* and the *Supplementary Information for Legislative Review: 1988-1989*

Estimates, these two documents were used as guides. The primary categories in the former are used this year as the major subdivisions in each section. As a result, similar activities of all sections of any particular Branch are in the same category.

As in previous years, only those activities, achievements, results and programs of the year under review are included in this report. Any new programs, major changes to existing ones, and any significant changes in direction are also mentioned, both under the appropriate section and also in the executive summary.

Rather than intersperse the text with tables, graphs and maps, these have been grouped together at the end of the report to allow juxtaposition of related data for a smoother flow of the narrative copy. Alphanumeric notations are used to identify each Branch's contribution.

Afterword

While it is expected that the new format of the *Annual Report* could initially cause some confusion to those accustomed to the layout of previous years, it is also expected that through usage over time and growing familiarity this new format will be found to be more effective. It is necessary to note, however, that the present structure of the *Annual Report* would be modified as necessary in subsequent years to further facilitate access to its contents.

Administrative Services Division

The mission of the Administrative Services Division is to provide financial, personnel, systems, audit and operational management support to ensure achievement of the Department's mission and the effective and efficient implementation of its roles.

The Administrative Services Division provides administrative and professional support to ensure that executive administrative policies, procedures and directives are followed. The Division ensures the smooth, efficient and effective functioning of the Department and of the delivery of services.

The Financial Services Branch is responsible for the co-ordination and preparation of the departmental estimates of expenditure and revenue, *Supplementary Information for Legislative Review*, *Public Accounts Variance Analysis*, and quarterly cash flows; for control and processing of departmental accounts payable, revenues and receivables; and for control of the distribution and sale of hunting and fishing licences through approximately 800 private vendors and departmental offices.

The responsibilities of the Human Resources Services Branch include recruitment and selection, review of position classifications, payroll and benefits administration, labour relations, staff training and development, occupational health and safety, affirmative action, and employee relations/counselling.

Administration and Enforcement

A. Financial Services

- An automated contract system was developed for the recording and reporting of all contracts within the Department.

B. Human Resource Services

- Operation and development of the computerized payroll/personnel system has continued. Since April 1988 the system has been used to record and monitor employee attendance and calculate benefit entitlement on a trial basis. Beginning in July 1988 the system has been used to produce payroll documentation submitted to the Department of Finance for payment of overtime, shift, stand-by and week-end premium entitlements.
- Miscellaneous reports such as employee listings, service reports, pay equity, staff-year usage and increment listings were produced.
- The Human Resources Branch continued to monitor and allocate workers' compensation costs. Charges assessed the Department during the 1988-1989 fiscal year totalled \$207,241.76, down more than \$29,000 from the previous year.

- The Occupational Health and Safety Section was actively involved in delivering its existing program and preparing for compliance with new legislation. *The Workplace Hazardous Materials Information System*, veritably the most significant occupational health and safety legislation of the decade, was introduced. This required a major initiative in the development of policies, procedures and guidelines, as well as a training program. Training of all permanent and temporary staff of the Department began during the 1988-1989 fiscal year and will be continued throughout 1989-1990.
- The Department's *Safety and Health Manual* containing policies, procedures and guidelines on a variety of pertinent issues was printed and distributed to 125 work locations throughout the Province.
- Delivery of existing programs involved more than 400 employees receiving audiometric tests, and 200 others receiving training in a variety of safety matters. Most safety committees were visited, as were approximately 90 work locations. Formal inspection was conducted in 28 of these locations.
- During the year 40% of the staff attended at least one training workshop for a departmental average of 1.6 days of training per employee, an increase of 0.6 days over the previous year. The variety of courses was reduced substantially, focusing more on manager-identified needs. The highest participation was in *WordPerfect*, Recruitment and Selection, Effective Performance Management, Problem Solving and Decision Making, Managing Under a Collective Agreement, and a number of workshops directed to skills required exclusively by Natural Resources Officers.
- Throughout the year there were nine affirmative action seminars held for 230 managers and supervisors. Two self-declaration campaigns were held, one for permanent and term employees, the other for departmental employees. The program has made progress, particularly in the area of new recruitment into clerical entry level and/or term positions. Target group members appointed in 1988-1989 totalled 24, increasing the target group appointment rate from 19% to 47%.
- The Human Resources Section continued to be responsible for the Department's staff newsletter, *Resource Focus*. On two occasions, inserts focusing on different areas of the Department were included in the newsletter. The changing role of the Human Resources Branch was featured in June, and the development and training activities for staff were highlighted in November.

- During 1988-1989, Human Resources processed 25 formal competitions, five waivers of competition, 67 entry-level permanent and term appointments, 18 term appointments other than entry level, 40 lateral transfers, 118 classification reviews, 38 S.T.E.P. student appointments, and 458 tree-planter appointments/recalls.
- The second phase of the payroll/personnel system was implemented. Calculations and control of employee service and benefits have now been automated in addition to direct inquiry capabilities, attendance processing and streamlined payroll processing. With all employee information now in place, the management information capabilities of the system are just beginning to be realised. Expansion of this reporting potential will have a substantial impact on the Department by allowing regular redistribution of employee information to the Branches.
- For those employees classified as departmental a remittance procedure was implemented, effective January 1st 1989, for Blue Cross coverage of the costs of ambulance and a semi-private hospital ward.

C. Systems Services

- The preparation of the Department's *Annual Information Technology System Plan* was co-ordinated by the Administrative Services Section and an equipment procurement service was offered.
- The Computer Services Section provided support to the Department in the analysis, design and implementation of information processing systems and, at the request of client groups, completed feasibility studies that assessed the existing situations and recommended improvements.
- The Big Game Draw System and Fur Harvest Information System were enhanced to allow for more direct operation of the cash system by the user Branch and less intervention and support by the Administrative Services Section.
- The statistical tables and manipulations for the *Provincial Parks Visitor Survey* were transferred from a mainframe application to a micro-computer-based integrated system. This system required the development of statistical tables, reporting by volume weighting, and graphical capability integrated into a word-processing production of the final publication.
- Multiple installations of local area networks, micro-computer set-ups ensuring complete compatibility with peripheral devices, installation of software,

testing and support of users, covering both hardware and software problem-solving, were undertaken by the Administrative Services Branch. This support included advising Branches of hardware configurations, and of enhancements and recommended software for their automated information processing needs. This support included solving users' difficulties with *DOS*, *WordPerfect*, *Lotus*, *Dbase*, *Harvard Graphics*, *DISOS*, local area network software and set-ups, and related products and utilities. The support also included maintaining, modifying and producing various reports by using existing developed systems on the Manitoba Data Services mainframe.

D. Operational Services

- Operational Support Services continued to provide services in the areas of accommodation (both office and storage), employee housing, office equipment, vehicles, inventories, insurance, clothing (both environmental and uniforms), warehousing, library services, and freedom-of-information services.
- The Records Management Program continued to be one of the major facets for the year with the documentation and scheduling of the Department's files.
- Library Services continued to be a major contributor of support services with approximately 44,000 books and reports, 9,000 reprints and 325 periodicals.

E. Internal Audit

- Internal Audit continued to provide a service to senior management by reviewing, appraising and reporting on financial, compliance and management practices throughout the Department.
- A wide variety of audits and special reviews of varying complexity and extent were undertaken. Day-to-day and annual audit tasks, such as reviewing financial statements of those receiving grants, consulting with Branches, campground cash control, and revolving inventory audits, were performed as required.
- Special audit projects, such as a review of the way funds are spent and controlled in relation to our forest-fire program, and special reviews involving internal control were undertaken at the request of management.
- The Forestry Branch Comprehensive Audit continued and neared completion during this fiscal year.
- The Audit Section has commenced the preparation of a *Comprehensive Audit Manual* and a methodology for assessing area risk which will aid in determining where best to expend audit resources.

Section 4

Communications, Economics and Planning Branch

The mission of the Communications, Economics and Planning Branch is to provide communication services and economic, planning, allocation and ecological management to ensure sustainable development of renewable provincial resources.

The Branch co-ordinates communications programs for the Department and delivers public information and educational programs; provides strategic planning input and economic, analytical and evaluative support on an assignment basis; prepares and co-ordinates activities involving resources allocation, outdoor recreation and tourism; assists in the development of policy and legislation; establishes and monitors environmental standards, and manages environmental licensing of departmental developments.

The Branch also administers the Province's ecological reserves and ecologically significant areas, and the southern Crown land planning program.

Economic Development

- During the year the Crown Land Classification Committee (C.L.C.C.) reviewed and received approval from the Provincial Land Use Committee of Cabinet (P.L.U.C.) for the establishment of, or additions to, six Wildlife Management Areas, one Ecological Reserve, and one Provincial Park. The day-to-day administration of Crown lands is guided by operational codes assigned to each parcel of land by the C.L.C.C., working in conjunction with regional Bloc Planning Committees (B.P.C.) (Table CM.3). The C.L.C.C. and B.P.C. include representatives from the Departments of Natural Resources; Agriculture; and Northern Affairs. Representation from Energy and Mines and from Environment were only included last year, when the mandate of the C.L.C.C. was reviewed and again approved by P.L.U.C.

Each parcel of Crown land is evaluated to identify the opportunities which it affords for sustainable development under every type of use, and to ensure that the potential for these uses is not diminished by incompatible development on it or adjoining land. The operational code of each parcel allows for the orderly management and development of that parcel for optimum use.

The codes used in administration are translated into a more general system of Provincial Crown Land Plans which are prepared in conjunction with local municipal authorities (Table CM.3). These plans permit orderly integration of municipal and Crown land planning. During the year the C.L.C.C. received approval from P.L.U.C. for one Provincial Crown Land Plan and three plan amendments. There are now 15 approved Provincial Crown Land Plans, four

draft plans under review, 31 areas under study and review, and a number of Plan Amendments under consideration (Map CM.1, Table CM.3).

Aside from its responsibilities to C.L.C.C., the Branch acts on behalf of the Department to evaluate the use and tenure of Crown lands, and the proposed changes to the municipal plans and by-laws which affect private lands. In some instances it is determined by review—conducted by this Branch and including consideration by all relevant Departments, agencies and levels of government—that some Crown lands would be more efficiently developed and used under private ownership. During the year the Branch processed 100 requests for Crown land sales, 148 proposals for Crown land exchanges under the Local Government District lands exchange program, and seven individual exchange requests.

The information obtained in this process is sent to the C.L.C.C. for final determination. Last year the C.L.C.C. considered 107 sales of agricultural Crown land, recommending approval of 62 and dismissal of 45. In addition, eight appeals were considered. A number of sales of non-agricultural land, and 168 exchanges of Crown land were also processed.

- The Branch completed an economic assessment of the fisheries impairment on the Nelson River that could result from the Conawapa hydroelectric development.
- The Branch monitored the implications to the Department of trade issues, including the Free Trade Agreement, softwood lumber countervail, and G.A.T.T.
- The Branch provided management assistance for economic research projects undertaken under the Canada-Manitoba Forest Renewal Agreement, including chairmanship of the Opportunity Identification Committee.
- The Branch reviewed the economic valuation of the Beverly-Kaminuriak caribou herds.

Outdoor Recreation Development

- As a part of the municipal planning process the Branch co-ordinates the preparation of *Planning Reports on Natural Resources* to ensure that potential natural resource development and the concerns of each area are integrated into local planning activity. For the purposes of these reports, the Branch has the responsibility for analyses of the recreational values and opportunities in each particular municipality or planning district.

- Through the Licensing Advisory Committee the Branch responded to over 150 requests for allocations of resources to lodges and outfitting operations. Currently the Branch is assisting in the review of the licensing process, so that continued progress is achieved in meeting the demands of the tourism industry without compromising the future of the renewable resources of the Province.
- The Branch continued to assist in developing guidelines for the sale, lease or issue of permits for the use of Crown land for recreational purposes. Numerous requests for Crown land generated by this program were reviewed by the Branch. It is expected that these requests will increase as the private sector expands the provision of recreational facilities.
- The Branch planned a survey of Manitobans to obtain their participation rates and demands, and the trends in outdoor recreational activities.

Administration and Enforcement

A. Legislation and Policy Administration

- The Branch continued to take a leading role in creating legislation and policy which would ensure the Province's natural resources are managed in an environmentally sound manner, and would protect endangered species.
- The Department signed agreements with the Department of Environment, Workplace Safety and Health to carry out environmental assessments for projects that included Forest Management Plans, Park Management Plans and controlled burns. The Branch has the responsibility for ensuring that the projects developed, both internally and externally, meet environmental standards from a resource management perspective.
- The Branch administered *The Ecological Reserves Act* and ensured that all ecological reserves were managed and protected in accordance with the Act.
- *The Endangered Species Act* was finalised and has received first reading in the House. It is expected that this Act will receive final reading during the next session of the legislative assembly. Amendments to *The Ecological Reserves Act* are also in the final stages of review, and when enacted will make the management of reserves simpler and more effective.
- Research and development have commenced on legislation which will assist the Department in moving towards a more integrated management of the resource base, encompassing the principles of sustainable development and environmental management.

- The review of applications for licences issued under *The Environment Act* was co-ordinated by the Branch, with a full review of each application by the Department assured. Comments and concerns pertaining to resource issues were provided to the Department of the Environment for use in the licensing process.

B. Communication Services

- The Branch provides information on Crown lands to the public, other agencies and levels of government by annually updating the *Crown Lands Handbook for Agro-Manitoba*.
- Last year the Branch represented the Province at the Federal Government's annual meeting on land use.
- For the second year in a row, a major forest fire, this time at Brereton Lake in the Whiteshell, caused property loss and much concern. Once again, the previously prepared Crisis Communications Plan served to provide the public with accurate information quickly. Both staff and the media agreed that the system worked well.
- Branch reorganization during the year combined all media relations work, public inquiry services, and the preparation of publications, signs and displays into one unit. This arrangement streamlines administration and facilitates a completely co-ordinated approach in all dealings with the public.
- The Communications Section continued to make extensive use of radio, television and print to communicate a wide range of information to the public. The communications consisted of news releases, live appearances on radio and television by Branch staff, one-on-one contact with reporters, and the weekly *Resources News* audio tapeprint packages (Table CM.2).
- Ten new publications and five displays were produced during the year as a service to other Branches of the Department, with communications staff assisting with their planning, design and production (Table CM.1).
- As an economy measure the film library that was operated by the Department was amalgamated with that of Public Library Services, Department of Culture, Heritage and Recreation. Public access to the films was maintained while eliminating the operation of a separate film library. Videotapes continue to be distributed through the Communications Section and selected video retail stores.

C. Management Services

- The Branch is the focus of the Crown Land Classification Committee (C.L.C.C.), a sub-committee of the Provincial Land Use Committee, which is responsible for determining and implementing the policies for Crown land administration. The C.L.C.C. provides integrated multi-sectoral co-operation in this process by combining not only the inputs of the several disciplines in the Department of Natural Resources, but also by including representation from the Departments of Agriculture; Energy and Mines; Environment; Northern Affairs; and Rural Development.
- The Branch assisted in the major revision of the Department's *Mission and Roles Statements*.
- The Branch developed proposals for negotiating with the federal Department of Indian and Northern Affairs on a new billing formula for recovery of fire-suppression costs on Indian Reserves.
- The Branch examined the feasibility of establishing a new trust account for the collection and administration of funds for habitat development.
- The Branch co-ordinated the *1988 Park Visitor Survey*, designed to obtain public feedback on services, staff and facilities at 24 of the most popular Provincial Parks, and prepared an analysis of the results and compared them with those of the 1986 and 1984 surveys.
- The Branch prepared a statistical summary of departmental programs and their impact on the Province.
- The Economics and Program Review Section of the Branch completed an analysis of historical and projected resource use and demographic trends which have an impact on the Department's roles and missions.
- The Branch analysed the current and anticipated future financial impacts of the Department's fee discounts for seniors and examined options for changes.
- The Branch reviewed the feasibility of using the microcomputer model developed by Alberta to determine the economic impact of selected Provincial Parks in Manitoba.
- The Branch chaired and co-ordinated the Resource Allocation Working Group which is an inter-Branch forum to deal with multi-resource issues. A wide variety of topics were considered, many of which related to environmental licensing under *The Environment Act*, and tourist accommodation licensing under *The Tourism Act*. Additional subjects reviewed by the group included relocation of Provincial

Roads and Provincial Trunk Highways, routing of new power lines, and the allocation of remote lakes for cottaging.

D. Operational Administration

- The Branch co-ordinated a survey of Natural Resources Officers to determine their views on issues concerning their work.
- The Branch analysed the potential savings of a consolidated office building for departmental staff in Winnipeg.

Rural and Community Development

- The Branch provides secretariat, planning and technical support for the Crown Land Classification Committee, which is responsible for determining the uses of Crown land in Manitoba. The committee has supervised the preparation and implementation of a system of codes that specify the use, and conditions for such use, for each parcel of land in southern Manitoba (Table CM.3). These codes are identified in a set of maps issued annually by the committee, which also issues a report on the codes changed from the previous year.

The committee, which includes representatives from all affected government departments, reviewed and approved a number of requests for changes in coding, the projects of Ducks Unlimited, and a background report for the Mars Hill area. The development of policy was begun for the leasing of Crown lands and for specific uses of areas under the Crown Land Plan.

When preparing planning district and municipal planning documents the Branch is guided by the Province's policies on use, and by the Department's objectives. In 1988-1989, one manuscript and three *Planning Reports on Natural Resources* were prepared at the request of local Councils or Planning District Boards (Table CM.4). A parallel service continued to be provided to the Conservation Districts.

In addition, the Branch co-ordinated the assessment and evaluation of a number of draft municipal planning documents, proposed amendments to plans, and directed the Department's review of proposed subdivisions. The Branch was also a participant in an interdepartmental committee dealing with policy issues pertaining to land use in and around the City of Winnipeg.

- The Branch represented the Department on the Abandoned Rail-line Committee, and ensured that the Department's concerns were considered in the allocation of abandoned railway rights-of-way to individual farmers and municipalities.

- The Branch continued to monitor the progress of the flood agreement, and the land-entitlement settlements. The northern non-Treaty communities continued to request more input into resource allocation in the areas surrounding their communities, particularly those affected by flood agreement claims and land entitlement. Assistance was provided to the Department of Northern Affairs in an effort to resolve these issues.
- Work continued on the plan for the Local Government District of Mystery Lake, under the guidance of the Crown Land Classification Committee.
- The Branch represented the Department on the Northern Development Agreement Advisory Committee.

Enhancement and Maintenance of the Environment

- The Branch continued its efforts to preserve unique, rare and representative examples of Manitoba's ecosystems through the Ecologically Significant Areas program. The voluntary protection aspect of the program, designed to recognise special areas of Crown land receiving protection in selected Provincial Parks, Wildlife Management Areas, and Provincial Forests, was continued. Six new areas containing 1,020 hectares of land were enrolled. Five of these areas are owned or administered by individuals or Indian Bands. One is a special area of Crown land. Participants in the program received

signs to post on their areas to help protect them, and plaques and certificates recognising their efforts.

- Three prospective ecological reserves containing 39,200 hectares of land and water were recommended for designation as ecological reserves and for protection under *The Ecological Reserves Act*. These areas contain a wide variety of ecosystems ranging from sub-Arctic tundra, tundra lakes, rivers and ponds to major nesting sites of white pelicans and white-winged scoters. The recommended areas, as with areas already included in the program, are typical of Manitoban ecosystems.

Promotion of the program was significantly increased with presentations made to major naturalists' groups and to local landowners. A directory of all ecologically significant areas was prepared and distributed to naturalists' groups, universities, community colleges and interested individuals. It is expected that the directory will increase interest in ecological reserves as resource sites and as areas for nature study. The public was invited to recommend potential ecologically-significant areas for consideration through preparation and distribution of a user-friendly methodology.

- Direct support for the Canadian Council on Ecological Areas continued with Manitoba's representative serving as chairperson. Duties of the chairperson included representing the Council at national and international events.

Section 5

Conservation Districts Authority

The Conservation Districts Authority is responsible for encouraging the establishment of conservation districts in Manitoba. It also provides assistance for program development and implementation and co-ordinates or provides planning services to existing districts, and acts as the secretariat to the Conservation Districts Commission.

Enhancement and Maintenance of the Environment

- Resource management plans have been completed for three of Manitoba's five Conservation Districts. The last two are expected to be completed during the 1989-1990 fiscal year. The Turtle Mountain and the Turtle River Watershed plans have received Ministerial approval, while approval of the Alonsa Conservation District plan is expected early in the new fiscal year.
 - The planning process which involved both municipal councils and ratepayers within the districts received support from the district boards. The boards as well as the local community benefited from the long-term look at resource management. This co-operative effort should ensure the support and acceptance of future board programs. The boards are now using their plans to develop programs for the upcoming years.
 - The following is a summary of the services provided by the Conservation Districts Authority to Conservation Districts, municipal interests and the Conservation Districts Commission.
 - * The Conservation Districts Authority produced two planning documents, *Issues and Options for the Whitemud Watershed and Cooks Creek Conservation Districts*, and participated in two sets of public meetings;
 - * prepared seven draft proposals for new districts and organized and/or participated in more than 20 municipal and public meetings to provide information on the conservation districts program;
 - * produced the video, *Before It's Too Late*, which deals with conservation issues affecting all Manitobans, and which has received a very positive response from both the government and the private sector;
 - * completed the move towards direct granting with the phasing in of the Alonsa and Cooks Creek Conservation Districts at the beginning of the 1988-1989 fiscal year;
 - * acted as secretariat to the Conservation Districts Commission, had representation at all Commission meetings, and provided information and made recommendations on program content and financing;
 - * initiated the water management strategies for Cooks Creek and the Whitemud Watershed Conservation Districts as part of their management plans;
 - * co-ordinated the preparation of the water management addendum to the Turtle River Watershed Conservation District Management Plan;
 - * co-ordinated two satellite land-use studies, the Turtle River Watershed and Cooks Creek Conservation Districts;
 - * continued production of the C.D.A. newsletter, *ConserVision*, which highlights activities in the conservation districts and is mailed to about 700;
 - * participated in the development of the Province's Land and Water Strategy;
 - * assisted in the Lake Dauphin Enhancement Program;
 - * participated with the Cooks Creek and Turtle River Watershed Conservation Districts and the Department of Environment in developing surface water quality monitoring programs;
 - * sponsored an engineering study for a subwatershed in the Cooks Creek Conservation District;
 - * conducted more than eight audits on inspections in support of the program support/monitoring role;
 - * prepared proposals to secure Agri-Food funding for small dams within conservation districts;
 - * introduced conservation districts to the On-Site Hiring Program which gives districts an opportunity to acquire professional or technical assistance at no cost to the board;
 - * acted as consultants to the boards in the development of personnel and administrative/accounting manuals; and
 - * organized and prepared material for a joint Commission and conservation districts workshop, considered to be a success by those participating.
- Other activities included the production of a Conservation Calendar, co-ordination of the Ministerial opening ceremonies for the Cooks Creek Diversion, participation in Soil Conservation Week, and representation at various conferences such as The International Coalition and the Western Provinces Conferences.
- Interest in the conservation districts program remained high throughout the 1988-1989 fiscal year. The C.D.A. responded to several new requests for information on the conservation districts program while continuing to work with other groups of municipalities interested in forming districts. Efforts to promote six new districts are in abeyance pending further municipal consideration. A few proposals have been terminated due to a lack of support from some of the municipal interests in the proposed districts.

- The proposal for the Pembina Valley Conservation District was significantly restructured during the year. After holding public meetings, the R.M. of Argyle decided not to participate in the proposed district. The remaining municipalities of Lorne and Louise then decided to approach other neighbouring municipalities. As a result, a new district consisting of the R.M. of Lorne, the R.M. of Louise, the R.M. of Pembina and the R.M. of Thompson was proposed. The R.M. of Thompson was originally involved with the R.M. of Morris and the R.M. of Roland in a separate proposal. When those efforts failed, the R.M. of Thompson expressed an interest in joining the Pembina Valley Conservation District. The R.M. of Pembina had also been involved earlier in the proposed Pembina Valley Conservation District but had decided at that time to adopt a wait-and-see attitude.

Early in November, the four rural municipalities endorsed a proposal for the Pembina Valley Conservation District that would consist of the Rural Municipalities of Lorne, Louise, Pembina and Thompson. The Commission reviewed the proposal in late December and early in January advised the Minister of their support for the proposed district. At year end, the proposal was pending approval from the Provincial Land Use Committee of Cabinet.

- Activities to establish a district in the Interlake area were suspended when some municipalities decided not to join. Since these rural municipalities would be vital to water management concerns downstream in the Local Government District of Grahamdale, a district without their presence does not appear feasible.
- The municipalities in the Shoal Lake area of Manitoba continued with discussions which began in the fall of 1987. After a series of public meetings held in November 1988, and because of certain administrative considerations in some of the participating municipalities, a major restructuring of the proposed district became necessary. Adjacent municipalities including Russell, Silver Creek, Shellmouth, Boulton, Archie, Wallace and Sifton were invited to participate in discussions. Of these the R.M. of Ellice had already expressed an interest in joining the proposed district, while the Rural Municipalities of Russell, Silver Creek and Shellmouth had participated in earlier discussions in regard to a district in the Russell area. Meetings to continue negotiations are scheduled for early in the new year.
- Municipalities in the West Dauphin area have been holding discussions in regard to a proposed district. Water and soil management and conservation are the major concerns. Drainage, as part of water

management, has major implications as to costs. The C.D.A. was therefore requested to prepare comparative cost tables regarding drainage for a more detailed assessment of the implications of forming a district. After considering a preliminary proposal, including cost implications, the municipalities proposed structuring a special committee to further investigate the concerns over drainage costs and agreed to hold more meetings early in the next fiscal year.

- Severe flooding and erosion from run-off water during the spring of 1988 prompted the rural municipalities of Swan River and Minitonas and the Local Government District of Mountain to investigate the conservation districts program as a mechanism to address their issues. A proposal was made to the municipalities in March. Since the proposal contained significant costs regarding drainage, the municipalities agreed to discuss the matter with their respective councils before proceeding further.
- A request for information on the conservation district program was received from municipalities in the Roseau River area. The Rural Municipality of Franklin and the Local Government Districts of Stuartburn and Piney are seeking a preferred mechanism for dealing with inter-municipal water problems and a variety of soil management and resource concerns. At a meeting in March, the councils agreed to tour one of the existing conservation districts in order to meet with a working board and to view some of their accomplishments. Further meetings are pending.
- In the Whitemud Watershed Conservation District work continued on the board's resource management plan. Public meetings were held in five communities to review the board's *Issues and Options Paper*. Information gathered in this process will be incorporated into a draft management plan which will be ready for public review early in 1989.

The board of the Whitemud Watershed Conservation District completed the first phase of a study which is looking into the development of a multiple-use plan for the Big Grass Marsh. The overall objective of the study is to identify various options and costs and to identify funding sources from both government and private sectors. The first phase of the study assessed various options while the second phase, expected next year, will concentrate on the viability of proceeding with the project.

The Whitemud Watershed Conservation District's Agri-Food Program demonstrated the viability of securing external funding sources to supplement the provincial grant. The board expects to continue soliciting external funds in future years so as to broaden its base of program financing.

The dry summer of 1988 allowed an expanded program on the Big Grass River project which is now about 65% complete and is expected to be finished within the next two years. Work continued on the Westbourne, Beaudin, Rat and Perch Creek projects, while the Youill, Gillespie Diversion and Alonsa Drain projects, were completed. The Westbourne, Beaudin, Rat and Perch Creek projects will improve drainage and, consequently, productivity on 19,000 hectares of Class 1 to 3 land.

Two water-storage projects, the Fourth Base and Wright Dam were completed this year. Water-storage and conservation projects are expected to increase significantly over the next few years.

In addition to soil conservation programs funded under Agri-Food, the Whitemud Watershed Conservation District spent approximately a quarter of its regular programming budget on a variety of soil conservation programs. The District also spent slightly more than 55% of its budget to realize its obligation to maintain the District's drainage systems. Other programs included crossings, administration, education and a continuation of a variety of wildlife and other resource programs.

- The Turtle River Watershed Conservation District's resource management plan which was adopted by the board late last year was expected to receive Ministerial approval early in the new year. Work also continued on the district's high-priority water-management plan. Twenty-eight crossings were replaced and over 50 were repaired by the district's labour crew who also supervised a variety of drain-maintenance programs. The Engineering and Construction Branch of the Department of Natural Resources also delivered two construction projects on behalf of the board.

In addition to their forage-seed and grassed-waterways programs, the Turtle River Watershed Conservation District introduced two new soil conservation programs. Four landowners participated in a buffer-strip program, and five in a saline-soil program.

With a \$1,000 donation from the Westlake Wildlife Association, the Turtle River Watershed District was able to acquire another half section of multi-resource-use land. The District is also experimenting with a one-time grant of \$300 to landowners to assist them to maintain certain lands for wildlife. So far, seven landowners have signed up for the program.

Highlights of the Turtle River Watershed Conservation District's public education program included a mural competition co-sponsored by Ducks Unlimited Canada; participation in National Soil Stewardship Week; planting trees for wildlife; and, the Annual District Youth Speaking Contest and Farm Family Awards.

Another new program of the Turtle River Watershed Conservation District for this year was program evaluation. Forage-seed assistance, spraying, and changes in land use are some of the targets of the program. A satellite image and analysis of current land use in the district were acquired to assist in the program. Other highlights were initiation of the Village of Ste. Rose du Lac flood protection scheme by the Province and the approval of a revised Hansen Creek project.

In the Alonsa Conservation District the Board completed its resource management plan late in the year. The plan was well received by residents in the district and many items addressed in the plan are now being implemented by the board in their annual program. The plan is expected to receive Ministerial approval early in the new year.

The Alonsa Conservation District continued to focus on its forage-seed assistance and land-drainage programs. Grass seed was provided to 146 farmers and several drains were brushed or cleaned out.

The Portia Project, which was funded mainly by Ducks Unlimited Canada, was completed in 1989 at a cost of over \$1 million. In addition to benefits for waterfowl and other wildlife, many ranchers in the area will also benefit from the project. To complement the Portia Project, the Alonsa Conservation District is proposing an interpretative centre complete with a walkway system and wetlands. To assist in the construction of the estimated \$65,500 project, the district is seeking external funding from a variety of sources.

In another new initiative, nesting islands and controlled outflows were built on marshy areas near Lake Manitoba.

During the year, the Alonsa Conservation District acquired a survey level in partnership with the Local Government District of Alonsa and the Agri-Food Association. The level will be used to assist the board with preliminary surveys. Administration and public education rounded out the district's program.

- Completion of the development of its long-range resource management plan was one of the major highlights of 1988 for the Turtle Mountain Conservation District. At the Provincial Conservation District Association's annual meeting in Brandon in early December a Memorandum of Understanding signifying provincial approval of the plan was signed by Manitoba's Minister of Natural Resources, and the chairperson of the Turtle Mountain Conservation District Board. With its management plan approved, the district will now be able to begin developing new programs to meet the area's conservation requirements.

As a result of the extremely dry weather experienced in 1988, there was a tremendous increase in interest in water-management projects. Water storage in particular was very popular, with the Turtle Mountain Conservation District receiving many applications for new works. With the permission of the Conservation Districts Commission, the works program originally scheduled for the year was altered somewhat to try to meet those requests.

Soil conservation, public education and recreation, and wildlife programs continued to play a very important role in the Turtle Mountain Conservation District. The district also began experiments with back-flood irrigation. Excess run-off will be held back temporarily in the spring while the ground is still frozen. In addition to lessening the effects of downstream flooding, the stored water will increase soil moisture supplies.

Other initiatives in the Turtle Mountain Conservation District included the construction of nesting islands in a marshy area and the diversion of a creek into a gravel pit to provide nesting habitat for waterfowl.

Plans were completed for the planting of over 4,000 trees of 24 species in the Moncur Nature Centre. In addition to improving wildlife habitat, the plantings would be an excellent collection of a wide variety of trees and shrubs.

- The Board of the Cooks Creek Conservation District completed the first stage of their management planning process with the distribution of the *Issues and Options Paper* in March 1989. Public meetings were held in March to obtain community feedback and direction. A draft management plan will be produced in the summer of 1989 and a second round of public consultations is scheduled for November, leading to a final plan before the end of fiscal year 1989-1990.

- The Cooks Creek Diversion project which began in 1985 was completed this year. The 16-km channel was constructed at a total cost of \$4,501,750. Approximately \$25,000 will be spent next year to complete seeding and trimming operations. The first stages of the project were funded under the Canada-Manitoba Value Added Agreement. When the Value Added Agreement came to an end, the Province and the board shared the costs of the project on an 80/20 basis. Costs for the final year were funded by Canada through the Agri-Food Program. The board also shared costs of some land acquisitions during the Canada-Manitoba Value Added Agreement phase. The completion of the Cooks Creek Diversion was marked by a signing ceremony, hosted by the Board in Dugald on November 9th, with the federal and provincial ministers.

The second phase of the Cooks Creek Diversion project is the improvement of the tributary drains in the area. The project area will be divided into six sub-watersheds and construction will be done over several years with completion expected to be in the 1990's.

The Cooks Creek Conservation District's modest public education program included grocery bags for Soil Conservation Week; a brochure on the Cooks Creek project; the Conservation Farm Family and Public Speaking competitions; and, the purchase of a satellite-image land-use map. The balance of the board's programs, in addition to administration, included reconstruction and maintenance of various drains and crossings and the removal of drifting soil from six kilometres of drains.

Engineering and Construction Branch

The mission of the Engineering and Construction Branch is to provide engineering services and be capable of responding to flood emergencies.

The Branch provides engineering investigations, preliminary and detailed designs, surveys, project management services and related support services for all Branches of the Department, and to municipalities, Conservation Districts and other government agencies. The types of works include drains and crossings of provincial waterways, dams, erosion control works, water distribution and supply systems, sewage collection and disposal systems and a variety of buildings such as pump-houses, shower buildings, greenhouses, cold storage buildings, etc. The Branch also operates and maintains the provincial flood control facilities, such as diversions and dykes; co-ordinates all flood-fighting activities, and assists the Manitoba Disaster Assistance Board with restoration works and claims from the public sector.

Economic Development

- The Design Section started work on developing a computer-aided drafting system and also participated in developing electronic surveying. Expected future work will frequently involve the use of this technology.

Design work included three major projects: the Pasquia Polder III Land Drainage project, the Washow Bay Land Drainage project, and the last phase of the Ste. Rose project which included the design of major pumping stations. Design was also done on dyking systems for St. Adolphe, Souris, and Emerson. During the fiscal year, feasibility studies were done for the North Duck River Dam.

Preliminary work was completed for a sewage treatment lagoon serving the cottage area between Flin Flon and Bakers Narrows.

- The Geotechnical Section provided soil mechanics and foundation engineering services to the Department and other government agencies. Where geotechnical input was required, the section performed stratigraphic investigations by drilling, sampling and classifying at proposed construction sites. Soil parameters and properties were established by laboratory testing. This information was then used to make design recommendations for the construction of such structures as dykes, diversions and related elements.

The section assigned construction inspectors to projects where quality-control testing and inspection were required. Soil-testing services were provided for the Department and other agencies by the division's laboratory.

Some studies and investigations conducted and reports prepared were the Emerson Dyke Stabilization; North Duck River Headwater Storage; White-shell Provincial Park, Falcon/West Hawk Lake Proposed Waste Disposal Site Geotechnical Report; and Suitable Hydraulic Conductivity Tests for Lagoons.

The section provided construction inspection services on five projects: the Ste. Rose Dykes, the Souris Water Plant Dykes, the Cooks Creek Diversion and the Mink River Bridge. The laboratory performed 7,512 tests on soil samples taken at the sites of 147 proposed projects. These tests included strength tests, consolidated tests, permeability tests, classification tests and index property tests.

- Work undertaken on behalf of the Water Resources Branch by the Interlake Region consisted of the operation, inspection and maintenance of water resources facilities, including approximately 1,600 km of provincial waterways, 200 bridges and 10 provincial dams.

Under the capital program five major culverts were installed under the Bridge Replacement Program, a concrete box crossing was installed through P.T.H. 6 in the Fish Line Drain, and 1.6 km of the Camper Drain were reconstructed in the R.M. of Siglunes.

A construction survey was completed on the Washow Bay Drain. Land, culverts, sheet steel piling and other miscellaneous materials were purchased for construction on the Gimli Diversion.

Work for the Wildlife Branch consisted of the ongoing maintenance program at Oak Hammock Marsh, and also the installation of four slide gate control structures and one outlet structure.

Electricity was provided to the new building at Clandeboye, and a viewing platform was constructed at the Narcisse snake dens.

- Work done on behalf of the Water Resources Branch by the Western Region consisted of the inspection, maintenance and operation of infrastructure on approximately 675 km of designated provincial waterways, over 150 bridges over them, and 22 flood and erosion control dams (including Lake of the Prairies). Major activities associated with the Water Resources' maintenance program included brushing and cleaning out of Mineral Creek; relocating dykes on the Mink River; installing pipes on the East Townline Drain; cleaning out the Indian Birch River, Bell River, and the Wasyliuk Drain; refurbishing the catwalks and monorail on the Gilbert Plains Dam; and riprapping the channel downstream of the Avonlea Drain drop structure.

Under the bridge replacement program a precast concrete bridge was constructed, under contract, over the Mink River. Capital projects included construction of the Pasquia Drain near The Pas, construction of 4 km of the Jackfish Creek, and the purchase of materials for reconstruction of the Community Pasture Drain in 1989-1990. Construction of the Ste. Rose Flood Protection project was a major activity on behalf of the Water Resources Branch.

For the Parks Branch, the sewer lines at Manipogo Provincial Recreation Park were upgraded, and piles were driven to anchor new docks at the marina. At Rainbow Beach Provincial Recreation Park, 36 sites in Bays 1 and 3 were provided with electricity. At Asessippi Provincial Park additional piles were driven at the marina. Preliminary engineering work for a new lagoon at Bakers Narrows Provincial Recreation Park was undertaken for the Parks Branch and the Department of Northern Affairs as joint clients.

Work for the Forestry Branch consisted of repairs to various flood-damaged roads in the Duck Mountain and Porcupine Hills area.

Plans were developed and the right-of-way purchased for the Ochre Beach and Turtle River boat-launching ramps.

- Work carried out in the South Central Region on behalf of the Water Resources Branch included maintenance and operation of approximately 1,150 km of designated Provincial Waterways, 19 dams, 320 bridges, 40 gradient control structures and flood protection dyking systems for the towns of St. Jean Baptiste, Morris, Letellier, Rosenort and Brunkhild. Work also included the maintenance and operation of the Assiniboine/La Salle River Enhancement Project and the West Dyke for the Red River Floodway. The Assiniboine/La Salle River Enhancement Project covers the monitoring, maintenance and operation of three permanent pump sites which augment the flow of water throughout the year in the Elm River, La Salle River and Mill Creek. This guarantees a water supply for the new water-treatment plant at Sanford, and also for market gardeners and farming operations.

Five major culverts were constructed under the Bridge Replacement Program, as well as a temporary detour crossing at a burnt bridge location. Culverts were purchased for five additional sites for installation in the summer and fall of 1989.

Plans for the right-of-way purchase and spreading rights were prepared for the Barickman No. 2 Drain project. Land acquisition was initiated with most of the mutual agreements made being to the end of the fiscal year. Plans for right-of-way purchase were also

drafted for the Carman Diversion once the route was selected. Land acquisition was begun and, at the same time, an environmental assessment report was submitted. An environmental licence is pending the outcome of further discussions and meetings.

- Engineering staff in the Eastern Region were responsible for the maintenance and construction of approximately 1,150 km of provincial waterways and flood control works for the Water Resources Branch. Five major drain crossings were replaced, and material was ordered for two crossings. In addition, construction and crossings were completed on 3.2 km of the Vita Drain, 6.4 km of the Dubas Drain and 4.0 km of the D-20 Drain. Land acquisition was completed on both the Libau and Bachman Drains.

Under the Flood Damage Reduction Program, sheet piling was ordered for Emerson, land acquisition was completed for the St. Adolphe extension and West Lynne Dyke, and work on the Noyes Dyke, south of the Emerson Dyke, was started by the U.S. Corps. of Engineers.

A number of projects were completed for the Parks Branch in Whiteshell Provincial Park. The work at Falcon Lake included upgrading of the lift station and replacement of the sewer line, major upgrading to the South Shore Road, a new garbage dump, initial improvement work to Falcon Creek through the Falcon Lake Golf Course, completion of the design for the ski tow and upgrading to the shopping centre. At West Hawk Lake the lift station was upgraded and the roads were gravelled. The roads to Star and Caddy Lakes were also gravelled.

At Grand Beach a lift station and sewer line were upgraded.

The one project undertaken for the Fisheries Branch was the provision of assistance in the upgrading of the water-intake line to the West Hawk Fish Hatchery.

A lift station was installed and the sewage lagoon upgraded at Bannock Point for Government Services.

Upgrading of the bare-root storage building and purchase of required material for a dust-control system at the Pineland Forest Nursery were completed for the Forestry Branch.

- The South West Region is approximately 37,000 sq. km in area and includes 62 municipalities and 35 watersheds. Within its boundaries are 1,900 km of constructed waterway, 1,100 bridge or culvert crossings and 25 provincial dams. The primary emphasis in this region was on maintenance and improvement of this system. New construction projects included a dyke at the Souris Water Treatment Plant, and a

survey and design for additions to the sewage collection system at the International Peace Gardens.

Assistance in the form of engineering advice, including design and surveys, was provided to a number of municipalities within the Region.

- Advice was provided to the Parks Branch by the Maintenance/Sewer & Water Section, on the technical considerations for sewer and water services. The design, engineering and environmental impact reports were completed for both an additional cell for the sewage lagoon at Otter Falls in Whiteshell Provincial Park, and for the upgrading of the existing cell of the sewage lagoon at Paint Lake Provincial Recreation Park. The design was completed for an additional cell for the Paint Lake lagoon. Soil and site investigations were completed and a design was prepared for the Orok siding site in Clearwater Lake Provincial Park. A site was selected at Brereton Lake in Whiteshell Provincial Park for a new sewage lagoon. The design of a sewage collection system was completed for the north side of the International Peace Gardens, while a design was prepared for upgrading the water-treatment system for the Gull Harbour Resort. The section managed a team which developed and had approved the development of a historic village at Hecla.

The preparation of operation and maintenance manuals for sewer and water systems in Provincial Parks continued. Six manuals are now being used and verified in the field. Information for four additional manuals has been collected with the preparation of written procedures under way. Two formal inspections were made of the systems at Birds Hill and Grand Beach.

Public Safety; Property and Resource Protection

- The Geotechnical Section installed, read and interpreted geotechnical test installations in order to monitor structural behaviour. These devices are normally installed at major dams and gradient control structures, and the resulting readings form an element of the Dam Safety Inspection Program which is administered by the Geotechnical Section. All dams owned by the Province are inspected at least once every two years, and where instrumentation is in place they are read annually and, in some instances, seasonally. In addition, the section conducted detailed inspections of 25 dams, and read and assessed pressure- and movement-measuring devices at more than 40 structures.
- In the Interlake Region, the operation, general repairs and maintenance of the control structures, ice guide-boom, diversion channel and dyke of the Portage Diversion were continued.

- In the Western Region, extensive restoration works of flood damage were undertaken in the Swan River area, and numerous investigations of flood damage were completed for the Manitoba Disaster Assistance Board.
- The Maintenance/Sewer & Water Section finalised plans for operation and maintenance manuals for flood-pumping stations. The work on these stations is planned for the 1989-1990 fiscal year.

Outdoor Recreation Development

- In the Interlake Region, the fire-fighting system at the marina on Hecla Island was completed for the Parks Branch, with approximately 4.6 km of base reconstruction on the old P.R. 233 also completed.
- The Maintenance/Sewer and Water Section investigated and advised on alternative methods of sewage treatment to assist in a review of changes to the Parks Branch's *Cottaging Regulations*, specifically as they applied to conditions in Whiteshell Provincial Park. Branch staff participated in ongoing meetings with representatives of the Whiteshell Cottagers Association. Engineering assistance was provided to an interdepartmental team led by the Department of Industry, Trade and Tourism to determine the feasibility of resort development at Grand Beach.

Administration and Enforcement

A. Program Support

- The Support Services Section provided administrative support to the regional staff in the areas of training, automation, accounting, personnel and general administration.

B. Operational Administration

- In the Project Control area, major new initiatives were completed with the successful introduction of Total Survey Station equipment that was used for gathering topographic information; and computer hardware and software used for computer-aided design and drafting. The necessary staff training accompanied the introduction of this technology.

Rural and Community Development

- The Design Section completed a feasibility study and design work on the Derksen Heide Dam*. Three crossings were designed for the Red Deer Road and a report was prepared on the West Waterhen Bridge* in response to a request from the Department of Northern Affairs.

- Engineering services were provided to municipalities and local government districts in the Inter-lake Region. Approximately 42 requests for service resulted in surveys, design and construction staking.
- In the Western Region, engineering services were provided to the Alonsa and Turtle River Conservation Districts. Work consisted of completing the reconstruction of the Maguet Drain* and construction of a rock weir gradient control structure on Wilson Creek near McCreary. Several investigative surveys and inspections of the Districts' drainage infrastructure were completed. Preliminary engineering survey designs and rights-of-way purchases were completed on the Amman Drain*. Work undertaken for the Alonsa Conservation District consisted of general drainage maintenance and preliminary engineering surveys on the Alan Dunn Lateral* and the Bulas Lake Drains*. In response to a request from the Department of Northern Affairs, three bridges on the Red Deer Road were replaced with culverts.
- In the South Central Region, engineering services involving surveys, investigations, designs and construction staking were provided to a number of municipalities in the region. Surveys were also completed to set elevations for the construction of homes, garages, machine sheds, barns and grain bins in the Red River valley designated flood area under the terms of *The Water Resources Act*. Twenty-one permits were issued for building construction which allowed survey crews to do a final compliance survey. Many miles of outside drains were plugged by top soil which drifted in from nearby fields. With the hot dry weather, dust storms were common. Backhoes, bulldozers and scrapers were used to clean out and spread the drifted soil.
- As a result of serious soil drift in the Eastern Region, numerous drains had to be cleaned out. The Cooks Creek Diversion was made operational with only minor items outstanding. One control structure and appropriate crossings, and the final contract of 5.2 km of excavation were completed. Surveys were conducted for the Cooks Creek Conservation District, and for local government districts and rural municipalities in the region; and the annual program for the Cooks Creek Conservation District was undertaken and completed.
- The South West Region provided technical support, engineering services and construction supervision to the Whitemud and Turtle Mountain Conservation Districts. In addition to the normal maintenance of drains and crossings, some of the larger ongoing construction projects were the Big Grass River Floodway*, Alonsa Drain, Perch Creek, Westbourne Project, Youill and Beaudin Drainage System, Fourth Base Water Storage and the Turtle Mountain Back-flood scheme. Other services to the Conservation Districts included the design and construction of six water-storage projects under the small dams program, and preparation of a road rationalisation proposal for the Whitemud Conservation District.

*Name unofficial—under investigation.

Enhancement and Maintenance of the Environment

- Soil parameters and properties established by laboratory testing in the Geotechnical Section were used to make recommendations required for the stabilization of natural slopes.
- In the Western Region work for the Fisheries Branch consisted of the construction of nine spawning enhancement rock structures on the Wilson River.

Fisheries Branch

The mission of the Fisheries Branch is to ensure sustainable development of the provincial fishery resources for present and future generations of Manitobans.

The Branch develops and implements fisheries management programs to provide the greatest benefit to Manitobans by maintaining or enhancing fish populations in the province; by monitoring the effects of harvest and habitat alterations on fish populations; by operating the provincial fish hatcheries to increase and/or sustain fish resources; and by allocating the fishery resource to ensure the best return. The Branch also administers the Northern Fishermen's Freight Assistance Program for commercial fishermen.

The Fisheries Branch is currently being re-organized. A new section will deal with fisheries management at the regional level, with the six regional fisheries managers reporting to the head of this section instead of to the director or one of three chiefs, as at present. The Fisheries Enhancement Section will be restructured to deal mainly with habitat matters. The Sport Section and the Commercial Section will be combined and be responsible for the development, maintenance and evaluation of policies and programs relating to the fishery resource. The primary objectives of these changes is the more effective allocation of staff and the placement of greater emphasis on resource work at the regional level.

Economic Development

- During the open water fishery of 1988 and the winter fishery of 1988-1989, commercial fish production in Manitoba was 14.2 million kilograms, up 7% from the previous year. The total final payment of \$11.4 million made by the Freshwater Fish Marketing Corporation in November to Manitoba commercial fishermen for the 1987-1988 fiscal year broke all previous records (Tables FI.1 and FI.2). The F.F.M.C. reported that final payments for the 1988-1989 fiscal year will not be as large as in previous years due to the heavy production of pickerel, both in the F.F.M.C. region and on the Great Lakes, causing an oversupply on the market and a price decline. The effect of the drop in price was made worse by the rise in the value of the Canadian dollar which reduced the profitability of export sales.
- A 3'-mesh net mid-winter fishery on Lake Manitoba operated again in 1989 as it did in 1988, 1986 and 1985. Traditionally, Lake Manitoba has been a walleye and sauger fishery using 3¾'-mesh nets. The 3'-net fishery was designed to allow fishermen to harvest the abundant perch which are not easily harvested with 3¾'-mesh nets while limiting adverse effects on walleye stocks. During last

winter's 3'-net fishery, perch accounted for 349,276 kg or 57% of the total, while sauger and walleye accounted for 210,085 kg (34%) and 54,963 kg (9%), respectively. This 3'-net fishery generated an additional \$1,700,000 for the 1989 season. Angling interests and some commercial fishermen have expressed concern over the potential impact of the 3'-mesh net fishery on walleye and sauger stocks. Available data indicate that potential damage can be minimised through a further refinement of the conditions under which that fishery will operate. There will be discussions with all interested parties before any decision is made on a 3'-mesh net fishery for subsequent years.

- There were 34 licensed trout-farming operations throughout the Province. In addition there were an estimated 300-400 hobby trout-farming operations in private waters. Four organizations and/or companies distributed the fish in the spring to fish farmers. Production in 1988 was lower than normal in the southern portion of the Province due to the high temperatures and low water-levels.
- Thirty-seven fishermen were licensed for commercial bait fishing in 1988-1989. Production of frozen bait fish was estimated to be 100,000 kg. The moratorium on the expansion of the live-bait fish industry was removed during 1988. The six live-bait fishermen produced about 50,000 dozen bait fish. Twenty-one dealers were licensed to sell live bait.
- This was the first year of operation for the new Swan Creek walleye hatchery, located on the southeast shore of Lake Manitoba, which has an operating capacity of 100 million walleye eggs and will rely on well water for incubation. A variety of species, including walleye and rainbow trout, were stocked as fry or adults in 122 sport-fishing waters. Table FI.1 shows the distribution to sport-fishing waters from fish hatcheries. The original hatchery built in 1928, was no longer structurally safe.

Outdoor Recreation Development

- The involvement of anglers in the management of the sport fishery in Manitoba is increasing. Swan Valley Sport Fishing Enhancement Inc., had their second fundraising banquet and auction and sponsored several management projects in the Western Region of the Province. These included assistance with stocking trout in Beaver Lake and funding for the Hickey Lake rearing pond structure, depth sounding and test netting several lakes in the Duck Mountain and Porcupine Hills areas, fish barrier maintenance on Two Mile and Glad Lakes, rough fish removal at Glad Lake and sponsorship of a one-day children's fishing seminar at Wellman Lake.

- Fish Futures, Inc., a provincial non-profit organization dedicated to fisheries preservation and enhancement and public education, became actively involved in co-operative fisheries management in 1988. Two major projects included an ongoing study on the Red River from Lockport to Lake Winnipeg involving a creel census to determine angling pressure (300,000 angler-days) and economic value of the fishery (\$10 million to area businesses and the Province). They also tagged over 700 walleye and channel catfish to determine population levels and movements. This included equipping some channel catfish with sonar transmitters to monitor daily, weekly and seasonal movement. Their study determined the average age of master angler channel catfish at 17 years, the catfish size-range and abundance and the spawning grounds in the Netley-Libau area. In co-operation with Manitoba Hydro and the Fisheries Branch, Fish Futures also constructed a fish barrier in Cooks Creek to prevent fish die-offs caused by generator plant shutdowns. The study's results were also used to develop the 1989 angling regulations for walleye and channel catfish.
- The 1989 *Sport Fishing Guide* was published by Fish Futures Inc. in conjunction with Manitoba Natural Resources. It is the first time a private organization has been involved in the publication of this annual issue.
- The Red River Advisory Group, in co-operation with the Fisheries Branch, published a *Management Plan for the Lower Red River Sport Fishery* which included recommendations for the present and future management of this water body.
- The resident conservation licence introduced in 1988 with reduced creel limits of four walleye/sauger, four pike, one lake trout and one channel catfish, represented 40% of the resident angling licences sold. The non-resident conservation licence represented over 44% of the non-resident licences sold (Table FI.3).
- New regulations were introduced to reduce or maintain harvesting through catch-and-release procedures without limiting angling opportunities.
- Anglers at Lake of the Prairies had exceptional fishing in 1988. These anglers were introduced to a proposed slot limit regulation for 1989 which would require the release of all fish between 45 cm and 70 cm long. Presentations made to local anglers, game and fish associations, and Chambers of Commerce, as well as the news releases issued were all well received. Angling pressure on the walleye stocks in this water body is increasing each year and these new regulations will enable managers to more effectively control the harvest and provide for increased angling opportunity.

Administration and Enforcement

- The Northern Fishermen's Freight Assistance Program continued to assist commercial fishing operations in the north. A total of \$322,561 was paid to 652 commercial fishermen for the 1988 summer season. Payments to 314 fishermen for the 1988-1989 winter season amounted to \$144,398.
- The quota system of allocating commercial fishing rights on Lake Winnipeg has been in place since November 1985. A quota entitlement review was conducted from November 1985 to July 1988 to determine whether the system has helped fishermen acquire more fish and to determine any changes to quota distribution and harvest patterns during the seasons. The total number of fishermen has declined from 754 to 724 and average quotas per fisherman have increased. Quotas designated for the summer season have increased while those for the fall and winter seasons have declined. However, actual summer production declined while fall production remained the same and winter production showed a small increase. It appears that fishermen are maximising the probability of catching their quota during the fishing year by designating purchased quotas for the summer season, thus allowing them to fish all year.
- As a result of discussions with the Lake Winnipeg Fisheries Management Advisory Board, the number of quota entitlements per person was increased from four to six for specific Community Licensing Areas on Lake Winnipeg. This meets fishermen's needs for higher fishing incomes while maintaining the overall lake quota. Other Community Licensing Areas maintained the maximum of four quota entitlements. As well, some Community Licensing Areas were combined, allowing fishermen more opportunities to transfer quotas within their particular expanded area. All other community areas were maintained as they were originally structured.
- The development of several new fishery yield equations provided new alternatives to the traditional productivity equation. Computer software packages for the Fishery Routine Analysis Programs and the Creel Cruncher (sport fishing yield-effort data analysis) were developed, refined and tested. Work commenced on the design of a computerised licensing and production system for the Lake Winnipeg commercial fishery.
- Last year was the tenth year of the standardised annual assessment program on Lake Winnipeg. Samples and data collected from trawls, experimental gill nets and commercial catches during the past decade were used to develop models which quantified the inextricable relationship of users and the fish resource, and provided several new ideas for resource allocation and refinements to the Lake Winnipeg management strategy.

Rural and Community Development

- Commercial fishing during the open-water season was closed on Lake Winnipegosis for the third and final year of a three-year program. The closure was intended to allow walleye stocks to rebuild and allow future harvest at increased levels. This fishery, characterised by too many fishermen and too few fish, has been declining both biologically and economically for over 20 years. An employment package is coupled with this closure to provide income for open-water fishermen. The Lake Winnipegosis Employment Opportunities Liaison Committee played a major role in reviewing and administering the year's employment projects. The 25 commercial fishermen who were involved in the program worked for six weeks on fisheries-related projects. The remaining four weeks of employment were set aside to put their own fishing equipment in shape for the opening of the fall fishing season in 1989.
- A fishery rehabilitation management plan on Lake Winnipegosis continued to address resource and industry concerns. Lake Winnipegosis was stocked with 25 million walleye fry. This was the third year of a five-year intensive walleye stocking program for this lake. It is believed that a three-year closure of the fall fishery coupled with the stocking program will significantly improve the walleye stocks and benefit the commercial fishery in the long term. Being considered under the management plan is the reduction of the open-water fleet through a vessel-reduction program that could relieve fishing pressure on walleye stocks and maintain an improved commercial fishery on Lake Winnipegosis.
- A consultant was hired to examine and facilitate the acquisition, upgrading and transfer of commercial fishing vessels from Lake Winnipegosis to Great Slave Lake or another fishery. Consultations are being undertaken with fishermen in the development of this plan, and three newsletters were prepared to provide information on this and other issues facing the Lake Winnipegosis fishery.
- A 3"-mesh net mid-winter fishery on Lake Winnipegosis was begun in 1989 to keep local fishermen employed. Winter fishermen experienced economic hardship last winter when the mullet market was closed and about 200 local residents were threatened with unemployment. Traditionally, Lake Winnipegosis has been mainly a pike and mullet fishery using 4 1/4"-mesh nets. The 3"-mesh net fishery was designed to allow fishermen to harvest the abundant perch populations which are not easily harvested with 4 1/4"-mesh nets while limiting adverse effects on walleye stocks. To protect the walleye in Lake Winnipegosis, fishermen were restricted to using 3"-mesh nets, had a quota of 2,000 lbs. (905 kg) of walleye and were restricted to fishing in specific zones to avoid known areas of walleye concentration.
- In 1988 a Cross Bay Fisheries Management Committee, made up of representatives of Grand Rapids and Easterville commercial fishermen, lodge operators, cottage owners and the local game and fish association was established to deal with fishery problems, issues and opportunities affecting Cross Bay. Working with this Committee, the Fisheries Branch designed an experimental fishery on Cross Bay to see if fishermen could selectively harvest whitefish without also harvesting significant amounts of game species such as walleye and pike.
- An experimental six-week winter whitefish fishery was allowed on Cross Bay (Cedar Lake). This was the first time since the early 1960's that commercial fishing had occurred on Cross Bay. Six fishermen from Grand Rapids and six from Easterville harvested 39,759 kg of fish worth an initial landed value of \$74,865. Whitefish accounted for the major portion of total production with 32,412 kg (82%) harvested. Notable in the whitefish harvest was that 62% was in the jumbo-size classification that brought premium prices to fishermen. Tullibee was next with 4,643 kg (12%) harvested. Pike production accounted for 2,522 kg or 6% of the overall harvest, while the walleye harvest was insignificant.
- Slot limit regulations which require the release of large and intermediate-size fish while permitting the angler to keep one trophy-sized fish (Master Angler) became applicable at Wrong, Gunisao and Goldsand Lakes, and on a portion of the Cobham River. A barbless-hooks-only regulation on these water bodies facilitates the safe release of the protected-size fish and ensures a low mortality rate.
- The Manitoba Habitat Heritage Corporation undertook 19 fisheries projects throughout southern Manitoba. The re-creation of walleye spawning habitat in channelled streams continued on the Wilson River (Dauphin Lake) and the Icelandic River (Lake Winnipeg). The addition of fieldstone to create spawning rapids has significantly improved walleye reproductive success in these waterways, resulting in larger walleye populations in Dauphin Lake and Lake Winnipeg.
- Aeration equipment was installed in the Boissevain Reservoir, assuring year-round fish survival in a lake prone to winterkill. This has provided additional sport-fishing opportunities in a region where demand is extremely high. A partial aeration system is being installed at Shoal Lake to provide a fish refuge during the winter. Fish screens have been installed at the outlets of the Mary Jane and Elgin Reservoirs to prevent fish losses during water releases.

Enhancement and Maintenance of the Environment

- Adult pike stocking in ponds at the Fort Whyte Centre for Environmental Education and in many small ponds and reservoirs in the southwest provided angling opportunities for children and seniors where no opportunities previously existed.
- Spring and summer drought conditions throughout the prairies in 1988 depleted water levels in many of the Province's water bodies, especially in the southern portion. As anticipated, there were winterkill problems in southwestern Manitoba and in the area south of Riding Mountain National Park. Ten fully aerated water bodies in the southwest carried fish populations through the winter in good shape. Two partially aerated lakes, Adam and Shoal, experienced drops in oxygen levels, although not to the point where fish die-off occurred. Mobile aerators were installed at Pelican Lake and Oak Lake. Pelican Lake experienced some die-off, but fish stocks seem to have come through the winter in good shape. At Oak Lake where two aerators were operating the fish survived the winter. Snow was cleared in strips on Sandy Lake to increase sunlight penetration through the ice. This system worked in 1988-1989 and walleye and trout stocks overwintered. However, in years of deep snow, opaque ice conditions, and many cloudy days, it is likely that snow clearing would be insufficient to prevent winterkill.
- The Manitoba Habitat Heritage Corporation commissioned a study to identify and develop sustainable yield "stewardship" plans for river and stream regions with important fisheries habitats. Five river and stream regions were identified and procedures for designating heritage habitat regions based on a physical and biological inventory of the area and on a "stewardship" plan for the sustainable development of the resource were proposed.
- Other Habitat Heritage projects included preparation and printing of a new poster of Manitoba's freshwater fish, completion of a film entitled *Spawning Stream Rehabilitation*, construction of a spawning reef in Lac du Bonnet, stream enhancement for trout in North Duck River, and rehabilitation of walleye rearing ponds at North Burrell Lake and Steeprock Bay.
- Computer software was developed for the Fish Habitat Inventory and Classification System to store, in a hierarchical watershed framework, fish resource and habitat data and information. Data sheets were completed for all the watersheds in the Western Region. The classification system will establish the present quality of fish habitat, and will assist fisheries managers to develop a co-ordinated plan for the protection, rehabilitation and enhancement of Manitoba's fish resources and habitat.
- As required by Claim 18 under the Northern Flood Agreement the monitoring of ecological impacts of hydroelectric development of the Churchill and Nelson Rivers on fisheries resources was continued in 1988. The worsening drought conditions experienced in 1988 were reflected in lower lake-levels. Water levels on all six study lakes in 1988 were considerably lower than they were in 1987. The midsummer elevation recorded for Cross Lake in 1988 was approximately 15 cm lower than the all-time low-level recorded in August 1980. The effect of these exceptionally low water-levels on the fish populations is not fully understood, but a number of fish were noted to be in poor condition, particularly in Cross Lake. A brief comparison of pre- and post-development information has also shown that significant chemical and biological changes have occurred in some portions of the study area. These changes include alterations in the nutrient regime and the plankton community. However, the significance or relation of these changes to the present status of fish populations is not known at present.
- In 1988, 111.2 million walleye eggs were collected from five walleye spawn collection sites. Swan Creek was the prime source of walleye spawn, accounting for 51% of the total collected. Walleye eggs incubated in three hatcheries (Swan Creek, Grand Rapids and Whiteshell) produced 44.3 million fry. Of these 75% were allocated to commercial fisheries, with lakes Winnipegosis and Manitoba receiving approximately 25 and 8 million fry, respectively. The remaining 25% were stocked mainly in southern sport-fishing waters.

Five rearing ponds were used to raise walleye fingerlings. The survival rate ranged from 0% to 7% and, in total, approximately 320,000 fingerlings were recovered.

An evaluation of the walleye rearing pond program from 1984 to 1987 resulted in the development of the Manitoba walleye rearing pond strategy. The strategy defines the role of rearing ponds in walleye management and provides principles to guide the present and future expansion of the program.

The well water used by the new Swan Creek Hatchery to incubate walleye eggs has an elevated salinity level. A study conducted to evaluate the effect of this on the survival of walleye eggs and larvae indicate that both life stages are tolerant of the increased salinity.

Forestry Branch

The mission of the Forestry Branch is to ensure sustainable development of provincial forestry resources for present and future generations of Manitobans.

The Branch supports and promotes forest harvesting and manufacturing through long-range planning and forest-management efforts to optimise the use of forest resources, sustain and enhance the existing industry, and to assist in the establishment of new industries.

The Branch administers *The Forest Act* and *The Dutch Elm Disease Act*; develops, implements and evaluates commercial harvesting plans for Manitoba's forests; administers timber-cutting licensing and measurements; conducts tree-improvement and forest genetic studies; plans and co-ordinates reforestation and forest stand tending; maintains a forest inventory; and develops and implements forest protection programs, including control of Dutch elm disease.

Economic Development

- The year ending March 31st 1989, marked the close of the five-year Canada- Manitoba Forest Renewal Agreement which contributed significantly to the enhancement of forestry and forest management in Manitoba. In particular, the five-year agreement under the Economic Regional Development Agreements (E.R.D.A.) saw significant contributions on the part of the Federal Government and the Province of Manitoba towards reforestation and forest renewal activities.
- Growth of the forest renewal program in Manitoba continued in the final year of the shareable agreement between Manitoba and Canada with close to 16 million seedlings being produced and planted on cut-over lands. Increases in site preparation, otherwise known as scarification, and natural seeding continued, as did activities in a number of other very important areas.
- Increased activities were experienced in all program and sub-program areas of the agreement, tree improvement, fire control, public information and communications, technology transfer, research into herbicides, economic development and economic analysis of the implications of *The Forest Act* and *Regulations*.
- Reforestation of not-sufficiently restocked and forest renewal of backlog lands also continued during the year but drew to a close with the ending of the current five-year agreement.
- During the year the prospects for a second five-year shareable agreement between Manitoba and Canada looked promising. However, as of year-end discussions had only been between the Branch and the Northern Forest Research Centre in Edmonton. The Branch is hopeful that there will be an extension of the first five-year agreement for a sixth year if a

new shareable agreement is not forthcoming. In that eventuality, it is expected that a second five-year agreement under the E.R.D.A. will be concluded during the 1989-1990 fiscal year.

- The Branch has been quite involved in the discussions surrounding the divestiture of Manfor Ltd. A number of interested companies have met with Branch officials to discuss timber supply and the availability of increased volumes of wood through expansion of facilities at Manfor in The Pas. The annual meeting with Manfor Ltd. was in March, when the activities of the company and the proposed plans for the upcoming operating year were reviewed. The need for a five-year report to set out the company's forest renewal activities during the 1984-1988 period was discussed.
- In the area of forest management a number of significant changes occurred. The agreement between Abitibi-Price Inc. and the Province was amended during the year to ensure the company's contributions for forest renewal were deposited directly in a trust fund. This new arrangement will help the flow of funding to the Province, and back to the forest renewal fund.
- Another important change to the agreement related to the rate at which lands may be withdrawn for public use. Specifically, a 10-year and 100 schedule agreement was set up which would see no more than 5% of the total licence area being withdrawn for public use during the 100-year period and the equivalent of 0.5% during any 10-year period being withdrawn for other incompatible uses.
- The second year of the five-year Manitoba/Abitibi Forest Management Licence Agreement was 1988. A five-year review of the activities of the company was held and the five-year operating and renewal plan for the third year of the five-year period has been submitted and is under review.
- In accordance with the new *Manitoba Environment Act*, an expanded review procedure will be followed in the coming months. Under the terms of this Act, an agreement made between the Ministers of Environment and Natural Resources approves the streamlined process of reviewing and licensing five-year operating and renewal plans of both the private sector and the Branch's Forest Management Units. It is anticipated that the ministerial review and licensing process will begin early in the new fiscal year, either with the Five-Year Operating and Renewal Plan of Abitibi-Price Inc. or with the Manfor Ltd. Plan which was finally approved through the departmental process in March.
- During the year the Forestry Branch responded to industrial development that required a continuous wood supply. Interest in the use of trembling aspen in industrial projects continued to increase.

- Negotiations continued throughout the year on a proposed Forest Management Licence Agreement covering the original Manfor Specified Area. Maintenance of forest inventory activities continued in the Highrock and Nelson River Forest Sections. An area of 62,000 sq.km is involved in the various stages of forest activity.
- For the forest products industry, the 1988-1989 fiscal year was generally a levelling-off period following several years of strong growth. Most mills were operating at (or close to) full capacity, but product prices showed a reluctance to climb further except with kraft papers where, as predicted a year ago, Canadian northern bleached softwood kraft rose to above the \$800 U.S. per tonne range in the European market. A shortage of kraft pulp and paper has kept the price floating upwards for several years and now has made investment in this type of mill more attractive. As a result, a marked increase was noted this year in new mills and in expansions to existing ones.
- Forest products were exposed to a number of negative market pressures throughout the year. The strengthening Canadian dollar against the U.S. dollar, rising interest rates, slipping newsprint lineage, and declining housing starts, all contributed to this softening market trend. Bucking this trend, however, were strong offshore sales of lumber, pulp and paper; the surprising strength and breadth of the domestic market; and a shrinking accessible wood supply. These opposing factors all helped to keep forest product prices fairly level throughout the year, except for the kraft paper markets as noted above.
- Developments within the forest products manufacturing segment in Manitoba were at an all-time high. After discussions with a number of interested buyers, the government announced it had negotiated the sale of the Manfor complex at The Pas to Repap Pulp and Paper Inc., a Canadian company with headquarters in Montreal and mills in British Columbia and New Brunswick. Details of the sale and signing of the agreement(s) were not finalised at the end of the fiscal year, but it was understood to include a major upgrading and expansion of the existing kraft pulp and paper manufacturing facilities at The Pas.
- A somewhat smaller but still significant development was the expansion of Palliser Furniture Ltd., by the addition of a particle board plant at their new Logic Division site in the east end of Winnipeg. The new board manufacturing facility should be operational by late 1989 or early 1990 and will use mainly trembling aspen from the Southeastern, Eastern and Interlake Regions.
- The feasibility study continued throughout most of the spring and summer of 1988 for a waferboard plant for the Swan River area. However, by the end of the fiscal year there had been no further developments.
- The harvest of timber from provincial Crown land totalled 1,856,697 cu.m for the 1988-1989 fiscal year. The softwood component accounted for 1,709,786 cu.m while the hardwood component amounted to 146,911 cu.m. This is 2,360 cu.m more than the previous year and represents a slight increase of 0.13 per cent. The production of pulpwood, railway ties and fuel wood rose, but lumber, posts, poles, mine timber and round timber product volumes declined (Figure FO.1 and Tables FO.1, FO.2, FO.3 and FO.4).
- The forest timber revenues slipped to \$2,518,014 which represents a decline of 15% from the previous year. This is attributed to the revision of the Abitibi-Price Forest Renewal Agreement and a slight decrease in the number of timber permits issued this year. (Table FO.5).
- The timber stumpage level was reviewed with the use of Manitoba forest products price index and resulted in an increase of 15.8% over the 1984-1985 base year. New dues were calculated and the industry was advised that they would come into effect on May 1st 1989.
- A total of 4,771 timber permits were issued this fiscal year. This represents a decline of 739 permits from the previous year. This change in numbers is attributed to a decline of interest in both the public cut-your-own fuel wood program and the commercial permit numbers (Tables FO.6 and FO.7).
- Thirty-six timber permit quotas were in force in 1988-1989. This is the first time there has been no change in the number of quotas from the previous fiscal year since they were first issued in 1965.
- Timber sale quotas amounted to 197, which is a decline from the 201 in effect on April 30th 1988, and a drop of 68.8% from the original 631 timber sale quotas first issued in 1965. However, for the first time again since 1965, four new timber sale quotas were created and awarded to the industry. This increased the total number of timber sale quotas to 635 under this system, and the 197 which were in force at the end of this fiscal year actually represents a 70% consolidation of these larger quotas.
- Christmas tree growing in Manitoba took a big step forward this year with the formation of the Manitoba Christmas Tree Growers Association. Approximately 65 new and established growers joined the association. Highlights of the association's activities

were a quarterly newsletter, contact with other state and provincial associations, and three general membership meetings to discuss various aspects of Christmas tree growing. Forestry staff from both the provincial and federal governments provided time and assistance to this evolving provincial association and forest industry.

- Interest in private land forest management, or what is more commonly known as woodlotting, continued to grow in the Province. Action was taken to formulate and implement a Farm Woodlot Program in Manitoba. A woodlot owner survey was conducted by a student last summer to determine the initial interest in woodlot management, and staff developed a potential marketing report for woodlot owners in the original study area of Forest Management Units 01, 20 and 23.

The response was considered to be above normal. The main results of the survey were that a large majority of the owners of forested land felt there was insufficient information available on woodlotting and that a program should be developed. It is also significant that the production of forest-related products was the third most common reason for owning/managing wood lots. As a result of this developing interest, a permanent staff position was assigned late in the year to begin developing private woodlot programs for Manitoba.

- The Forestry Initiatives Program consists of both the Canada-Manitoba Forest Renewal Agreement (E.R.D.A.) and the Forest Development Program. The five-year agreement with Canada came to a close on March 31st 1989. The primary objective of the Forestry Initiatives Program is to improve the level of forest management so that the timber supply capability within the Province will match industry's demands for the resource. Each component of this program has similar objectives, goals and detailed project areas. Both the agreement and the program are divided into four areas: forest renewal; intensive forest management; applied research, technology transfer, opportunity identification and nursery development; and public information, evaluation and administration.
- Provincial funds were contributed under the Canada-Manitoba Forest Renewal Agreement to the operation and maintenance of the Pineland Provincial Forest Nursery, and included the lifting, grading, packaging and shipping of 12.5 million seedlings. Approximately 7.6 million trees were planted with funding under the agreement. Also under the provincial direct program, 166 ha were site prepared in the Western Region, 653 ha were scarified in the Northern Region, 32 hectolitres of black spruce cones were collected in the Interlake Region, and 32 km of road were graded and 11.2 km gravelled in the Rice Creek area. The contract with the University of

Manitoba for the research on dwarf mistletoe infecting jack pine was completed, and an aerial survey for jack pine mistletoe took place over an area of 150,000 ha completing the jack pine mistletoe aerial survey for the Province. Two regional work stations were purchased for the Southeastern and Eastern Regions to provide for direct activity information entry and subsequent impact-analysis options. The Province is continuing to load the geographical information system and there were 776 forest cover map sheets produced in 1988-1989 with a total of 1,284 map sheets produced since April 1985. The number of air photo mosaics assembled, photographed and printed this fiscal year was 232.

- The federal component involved the two companies, Abitibi-Price Inc. and Manfor, which acted as delivery agents for the program. Through this program a total of 9,678 ha were surveyed, over two million trees were planted, and 375 ha were site prepared. In addition, 475 ha of spacing was carried out while 136 ha were treated with herbicides. A seed orchard was completed at Oakbank. An evaluation of the five years of the Agreement was completed and the recommendations were reviewed and assessed.
- The public information program continued and approximately 50,000 visitor contacts were made at 13 community fairs and exhibitions. A significant amount of material was sent to local schools.
- The third component of the Agreement is the cost-shared portion. Many research projects were implemented under the Memorandum of Understanding of the Forest Research Committee in the areas of regeneration, fire management, forest nurseries, forest economics, site classification, tree improvement, yields of managed stands, insects and disease and forest environment. Also cost-shared in this program was the lifting of field transplants and transplanting of approximately 200,000 seedlings at the Pineland Provincial Forest Nursery. Table FO.8 is a financial summary of these programs.
- The Forest Development Program is a completely provincial component and is part of the Forestry Branch's ongoing budget. This program is managed and delivered in much the same fashion as the Canada-Manitoba Forest Renewal Agreement. The Forest Development Program, which is divided into forest renewal, forest management, nursery development and public information, continued to support projects under the Agreement. As part of forest renewal 900,000 trees were planted in the Eastern Region, and 2,400 ha of land were site prepared and scarified in various regions for regeneration.

The Forest Development Program also contributed to the operation and maintenance of both Clearwater and Pineland Provincial Forest Nurseries.

Public Safety; Property and Resource Protection

- During the 1988 summer surveillance season, approximately 14,000 elms were examined in and around urban and rural municipalities for Dutch elm disease. Of these, 966 were confirmed to have Dutch elm disease and 12,022 were classified as hazards, many of these probably dead as a result of the disease. Due to the large number of infected elms in wild stands throughout southern Manitoba, particularly in the Eastern and Central Regions, control efforts were concentrated on elms in and around the 43 communities with cost-sharing agreements. Trees in the wild were largely ignored due to the impracticality of controlling the disease in those areas. In the communities with cost-sharing agreements most control efforts were concentrated in the areas of sanitation, pruning and basal spraying for the control of overwintering elm bark beetles. The Province is responsible for the survey and removal of diseased and dead elm trees within the agreement communities.

The number of Municipalities with Dutch elm disease remained at about 77 during the year. Communities with the disease included such major urban centres as Winnipeg, Brandon, Portage la Prairie, Morden, Neepawa, Selkirk, Steinbach and Winkler. The northwestern disease front is located south of Dauphin in and around the village of Ste. Rose du Lac. It appears that the disease entered the area via the Turtle River tributaries from the east escarpment of Riding Mountain National Park. Further west, on the Assiniboine River, the disease was observed to have moved only about 750 metres northward from St-Lazare.

Although Dutch elm disease continues to increase in the wild stands, the number of diseased elms in most urban centres with control programs were comparably low. Less than one per cent of Winnipeg's elms were diseased, and in Brandon, less than two per cent of the elms were infected.

The City of Winnipeg, which is responsible for its own survey program, reported 910 samples taken this year, 1,426 diseased trees identified, and an additional 3,720 marked as hazards. A total of 5,146 trees are scheduled for removal in the city.

Dutch elm disease has again continued to spread along most of southern Manitoba's rivers. Large increases in disease have occurred on the Red and Assiniboine Rivers in and around Winnipeg, along the Assiniboine to Portage la Prairie and west of Brandon as far as the St-Lazare area. Over the past few years, the Whitemud River around Westbourne as well as the east escarpment of Riding Mountain National Park have shown a considerable increase in the disease. The smaller river and creek systems

in south-central Manitoba also experienced more pockets of infection, thus endangering the farm shelter-belts in the areas around Winkler, Altona, Morden and Carman. The Souris River southwest of Brandon is extensively infected in Manitoba and southward into the United States. Although the river flows back into Saskatchewan, the natural elm population drops off just north of the border. It is expected that the disease will be exported to Saskatchewan via the Assiniboine River west of the St-Lazare area.

In the western part of the Province, the community of Minnedosa which had one diseased tree in 1987 experienced no disease this year. Rivers which was disease-free last year remained disease-free again this year. Neepawa, which had one diseased tree in 1987, had one diseased tree again this year. Virden experienced its first diseased tree this year. Many of the eastern and central communities in the Province experienced an increase again this year. However, decreases were observed in Brandon and Stonewall.

From November 1st 1987 to October 31st 1988, the Provincial Dutch Elm Disease Sanitation Crew removed about 8,000 elm trees. In addition, approximately 3,100 decadent elms were removed from the Brandon Buffer Zone and 1,000 from the Winnipeg Buffer Zone (La Salle and Assiniboine River areas). Most of the trees were removed using Community Services' staff in a winter-works sanitation program which operated from November 1987 to the end of March 1988.

- A generally early spring with relatively low infestations of cankerworms, provided decent conditions for sampling diseased trees. June was fairly productive for sampling. However, most identification was done in July and the first week in August.
- The spruce budworm infestation persisted in eastern Manitoba, predominantly in Whiteshell and Nopiming Provincial Parks and in the Abitibi-Price Forest Management Licence (F.M.L.) area. Approximately 33,670 ha suffered moderate to severe defoliation.

An aerial-spray program was implemented over an area of 1,182 hectares of high-use recreational land including campgrounds and cottage subdivisions.

The pre-spray survey for spruce budworm was carried out from May 24th to May 27th 1988, and confirmed the necessity to spray. Pre-spray population levels were 19 larvae per 45 cm branch in Nopiming Provincial Park, 14 in Falcon and West Hawk Lakes area, and seven at Dorothy Lake. As of May 27th 1988 the larval development index was 3.5.

The post-spray survey was carried out from June 13th to 15th 1988. Larval reduction due to insecticide in each of the spray areas was 56% in Nopiming Provincial Park, 70% in the Falcon and West Hawk Lakes area, and 47% at Dorothy Lake. Despite some adverse weather conditions and, consequently, a late application, a degree of foliage protection was achieved. There was 63% defoliation in the treated area and 86% defoliation in the untreated area in Nopiming Provincial Park. For the Falcon and West Hawk area the figures were 42% and 73% respectively, and 25% and 50% respectively for Dorothy Lake.

Egg mass surveys were carried out in August to predict spruce budworm defoliation for 1989 in Whiteshell and Nopiming Provincial Parks and in Abitibi-Price F.M.L. area. Populations are expected to remain high in 1989. Moderate to severe defoliation is predicted for the Whiteshell including the Falcon, West Hawk and Dorothy Lake areas. Severe defoliation is predicted for all sample locations throughout Nopiming Provincial Park and the Abitibi-Price F.M.L. area.

- Jack pine budworm populations remained low throughout the Province. No noticeable defoliation was reported. Egg mass surveys were carried out within commercially important jack pine forests to predict 1989 defoliation. Nil to light defoliation is predicted for all areas surveyed.

In 1984, Forest Protection commenced experimentation with a male moth attractant developed by R.P.C. of Fredericton. The objective of this study is to develop an adult moth survey method capable of monitoring jack pine budworm populations at endemic levels. Pheromone traps have been placed at 12 locations throughout the Province for four years (1985-1988). Moth captures declined from 1985 to 1987, but there was a twofold increase from 1987 to 1988 suggesting that populations have reached a low and are now starting to increase again.

- Dwarf mistletoe causes extensive damage in Manitoba, reducing both the quantity and quality of merchantable timber. Two species of dwarf mistletoe that attack white and black spruce occur in the Province. Since the spring of 1984, dwarf mistletoe surveys, research and operational sanitation projects have been carried out under the Canada-Manitoba Forest Renewal Agreement. The agreement provides \$280,000 per year for dwarf mistletoe management over its five-year duration. Due to other priorities, however, the total amount is not always expended.

A comprehensive aerial survey for jack pine dwarf mistletoe was conducted in early 1988 to map 7,500 sq.km of central Manitoba. The resulting information

was interpreted and transferred onto provincial cover-type maps. Blocks are flown when snow is on the ground because this allows for better definition of the dark dwarf mistletoe brooms against the white snow background.

Subsequent ground-truthing covered over 100 km during which dwarf mistletoe infection was rated at 50-metre intervals, resulting in over 2,000 point samples. During the course of the ground-truthing, potential treatment sites and harvestable stands were identified. Research data, in the form of mature and juvenile transects, was also gathered. A total of 11,500 sq.km has now been surveyed aerially with 200 sq.km of ground-truthing. It is hoped that in the coming year the survey will be completed.

Research on the disease biology and epidemiology of dwarf mistletoe infecting jack pine is being conducted by the University of Manitoba. The focus of this research is the development of a volume-loss simulator model. Parameters describing the behaviour of dwarf mistletoe infection, required in the model, are being evaluated using a spatial analysis system under joint development by the Botany and Computer Science Departments at the University of Manitoba. The analysis is being performed on data from 60 permanent plot sites in infected stands throughout Manitoba.

Additional research required in the development of the loss simulation model includes investigations into the interaction of *Armillaria* root rot with dwarf mistletoe infected trees, patterns of spatial and temporal disease development of mortality centres, and relationships between symptom development and tree mortality.

- As part of a jack pine dwarf mistletoe management program, red pine, a non-host species, was planted in Belair Provincial Forest during the 1970's. Growing on typical dry jack pine sites the young red pine have experienced mortality due to drought and *Armillaria* root rot. *Armillaria* activity was monitored in five infection centres from 1983 to 1988. Tree mortality to date in each of these was 41%, 35%, 19%, 15% and 18%, respectively.

Other investigations are ongoing to determine what conditions are necessary in mature stands prior to harvest which may create a root-rot hazard for the next generation of trees. This work includes consideration of over-maturity, site quality and current disease conditions such as dwarf mistletoe. A report of the results is to follow soon.

As part of a dwarf mistletoe management program resistant Scots pine was planted at Grand Beach in the 1970's. This exotic species has proved to be highly susceptible to the pine root collar weevil. A survey of three plantations was done in September

1988. The level of dead (due to weevil) and infested trees combined is 59%, 54% and 73%, respectively, for the three surveyed plantations. Scots pine is the most commonly planted Christmas tree in Manitoba. As a consequence of its high susceptibility to weevil it should not be planted in close proximity to jack pine forests which is the weevil's natural habitat.

- Sanitation pruning to control the white pine weevil has been partially funded by the Canada-Manitoba Forest Renewal Agreement from 1986 to 1988 in a high-value white spruce plantation located in the Interlake Region. In 1988 a total of 2,813 infested white spruce trees were pruned over 436 ha. The number of pruned trees represents 0.4% of the total tree population. This compares to 0.8% in 1986 and 0.7% in 1987. These figures are well below the critical treatable level of 2.0% set in the Province of British Columbia. Due to the large area covered and the short time span between symptoms becoming visible and adult emergence, pruning crews start as soon as infested leaders wilt. A check survey following operational pruning showed crews were covering a larger area at the expense of missing trees not yet displaying symptoms. It is suspected adult white pine weevil emergence stretches over a 3-4 week period. Several study plots have been set up in released and unreleased areas to assess whether opening up the stand is resulting in higher weevil populations. More knowledge of the white pine weevil's life-cycle is required to set pruning operation guidelines.
- The Manitoba plantation pest survey was conducted in 26 plantations covering 871 ha. In total, 2,601 trees were assessed in 335 plots. Of the 26 plantations, 18 were conducted jointly with one provincial staff member and one Canadian Forestry Service ranger. For the second consecutive year the survey was carried out in red and jack pine plantations ranging from six to 32 years of age in the Southeast Region of Manitoba. The survey is designed to gather baseline data on major plantation pests causing deformity, growth loss and/or mortality in young stands. More detailed impact studies and/or pest management decisions will be based on these initial surveys. Eventually survey data and maps will be down-loaded into the Manitoba Forestry G.I.S. system for use by regional staff.

Manitoba continued with the grid pattern survey which covers the plantation systematically. The survey method was modified in several ways in 1988 to simplify data collection and increase the area covered. Distance between plots and grid lines was increased from 80 to 150 m. As a consequence,

sampling intensity was reduced from 0.4% to 0.2% in 1988. Also, emphasis this year was placed on damage assessment rather than pest identification. These changes resulted in a four-fold increase in the area covered using half the staff. The survey allows for detection of tree damage and pest identification between plots as well as within plots. Accurate maps are drawn showing grid lines, plot locations, pockets of mortality, residual pockets, etc. Pest damage observed between plots is recorded. Often significant pest problems and tree damage were found along grid lines rather than within plots.

- Western gall rust is a disease of jack pine that can lead to serious volume loss, especially when occurring in young plantations. At the present time, jack pine accounts for 23% of Manitoba Natural Resources' planting stock and is projected to increase to 28% by the year 2000. Currently, the Canadian Forestry Service and Manitoba Natural Resources have established an interim seed orchard and plan for future seed orchards from which all jack pine seed requirements for provincial renewal programs will be collected. The Western Gall Rust Resistant Study was initiated in order to identify jack pine families that are resistant to western gall rust and to include them in the ongoing jack pine tree-improvement program in Manitoba.

This year was the first year of the three-year study which is a joint project of C.F.S. Edmonton and the Forestry Branch. During this field season, seedlings (grown from excess seed that was used to establish the interim seed orchard) were inoculated with spores collected in the spring from the Eastern Breeding District. In the fall, field assessment for rust infection was conducted on the original family test replicates located in southeastern Manitoba. Their susceptibility to western gall rust will be included in the criteria for ranking families to determine which will be included in the Province's second generation program.

- The 1988-1989 wildfire management area and volume-loss reports were not prepared due to numerous errors in the information supplied and the difficulty in obtaining an adequate fire map.

Administration and Enforcement

- The Geographic Information Systems continued on a double-shift basis and at year-end more than 1,000 sheets had been entered into the library of the Geographic Information System. These map sheets included the Townships in which the highest level of forest management both in terms of harvesting and renewal have been carried out.

- A new section of the Branch, the Forest Operations Section was created. The position of Chief of Forest Operations was filled by the Chief of the Forest Protection Section and the vacancy that resulted was filled through a public competition. However, the Chief of Forest Operations moved outside the Province and at year-end his position was to be filled through an internal competition.
- Computer program development to meet the requirements of the regional forestry offices was begun with the entry of timber-sale locations, depletion and area into the data base. Computer-assisted procedures for selecting alternative harvest areas for each timber sale entered were developed and implemented during the year.
- Programming commenced for silviculture data entry (plantation and stand improvement locations) into the system.
- The 1988 Metric Scaling Licence Certification Course was held from May 30th to June 3rd at Swan River. This year there were 11 candidates with nine successfully completing the requirements to receive (full) scalers' licences. Two departmental and one guest industrial instructor covered wood measurement theory, field practice, testing for cubing, and stack and tree-length scaling which is used for reporting Crown dues in Manitoba.
- The forester working in growth and yield represented the Forestry Branch at the Westbogy (Western Boreal Growth and Yield) Co-op meeting and at the Forest Modelling Symposium in Saskatoon.

Rural and Community Development

- In the Southern Region two family tests, five hectares in size, were planted with black spruce. A total of 25,200 test seedlings were planted to determine the genetic superiority of the 420 individual seedlots or families.
- A Memorandum of Understanding was signed by the Forestry Branch and Abitibi-Price regarding the co-operative tree improvement program in the Eastern Region. Abitibi prepared two five-hectare family test sites and the Forestry Branch prepared a site at Berens River for planting black spruce in 1990. The initial clearing of nine-hectare seed-orchard sites for the co-operative program was also completed.
- A Memorandum of Understanding was signed with Manfor Ltd. for their co-operative program in the Northern Region. Material from 372-plus black spruce was collected by Manfor. A total of 2,400 scions were grafted at Pineland Provincial Forest Nursery.
- In the Western Region four family test sites, four hectares in size, were prepared for planting with white spruce in 1990. The 380 families or individual seedlots are currently being grown in the tree improvement facility at the Pineland Provincial Forest Nursery.
- Under the jack pine tree-improvement program, which is implemented by Forestry Canada under the Canada-Manitoba Forest Renewal Agreement, ongoing maintenance on the Northern and Interlake seed orchards was continued, and a new seed orchard was established for Eastern Manitoba. This new "pedigreed" seed orchard is from controlled crosses between the best family test seedlings (Table F0.10).

Enhancement and Maintenance of the Environment

- A final forest inventory report providing new annual allowable cut information for the area was prepared for Forest Management Unit 20 in the Pineland Forest Section.
- Permanent sample plots designed to track forest growth changes over time continued to be established in representative forest stands across the Province. Permanent plots will be remeasured at five-year intervals to establish growth trends and to predict volume accumulations in the future.
- A site classification pilot project was completed with the finalization of the test area in the southeastern portion of the Province. This was the second area of a two-year project in co-operation with the Northern Forest Research Centre of Forestry Canada to examine current forest site classification techniques and procedures for Manitoba.
- In the Forestry Geographic Information System the loading of all available forest cover information into computer storage continued with increasing success. A second shift of data entry operators continued for the complete year. Forest cover data was provided for portions of the Lake Winnipeg East, Mountain, Saskatchewan River, Highrock and Nelson River Forest Sections of the Province covering an area of 70,770 sq. km. The number of forest cover map sheets which are in progress or have been completed and are in the library are shown in Table FO.12. U.T.M. co-ordinates for positioning forest cover map sheets into the computer are provided by the Surveys and Mapping Branch. This has a progressive sequence through forest areas based on the priority from the point of view of industrial use of forests.

Eight Forest Management Units have now been completed, and work is under way in an additional 16 in the western and northern portions of the Province. Forest Management Units 23, 31, 35, 38, 39 and 40 have been processed for volumes and area in summary format as required for the preparation of forest inventory reports and annual allowable cut determination.

- The 3,600 sq. km of aerial photography remaining from the 1987-1988 area in Forest Management Units 61, 65 and the southern portion of Unit 66 were completed. In addition, the northern portion of 5,705 sq. km of Forest Management Units 64 and 66 were photographed for a total of 9,305 sq. km in the Highrock Forest Section last year.

Under the Jobs Fund Sectoral Project for 1988-1989 232 air photo mosaics covering an area of 22,080 sq. km were assembled and photographically copied. Negatives of each mosaic (the Highrock Forest Section) were placed with the Surveys and Mapping Branch to enable copies to be sold to the public.

- Forest cover was delineated on new aerial photography for portions of Forest Management Units 36, 37, 61, 65 and 66 in the Lake Winnipeg East and Highrock Forest Sections covering a total of 18,290 sq. km.

Updated forest cover maps were completed for the remaining portion of Forest Management Unit 31, all of F.M.U. 36 and 37, and portions of F.M.U. 61, 65 and 66 in the Lake Winnipeg East and Highrock Forest Sections. The area prepared totalled 16,480 sq. km.

- Photointerpretation areas completed include the remaining portion of Forest Management Unit 31, all of F.M.U. 36, and a portion of F.M.U. 37 in the Lake Winnipeg East Forest Section, for a total area of 14,180 sq. km.
- No new plots were established for the resource inventory. The existing stand and stock volume table was used for Forest Management Units 31, 36 and 37, an area of 18,500 sq. km, which allowed forest survey crews to concentrate on the establishment of permanent sample plots.
- Growth and yield activity continued with the establishment of 34 permanent sample plots holding 7,221 trees. Forest Management Unit 06 of Turtle Mountain had five plots with 418 trees, and F.M.U. 31 and 29 had plots with 6,803 trees (Table FO.11).
- Two additional "stand-alone" work stations based on IBM System 2 Model 80 and P.C. Arc/Info software were purchased and installed, one in the southeastern regional office on Tuxedo Avenue and

the other in the eastern regional office at Beausejour. The purpose of the "stand-alone" system is to allow direct information entry and subsequent impact analysis, as required, for forestry regional offices across the Province, and the Forestry Branch's section offices in Winnipeg.

- The Forestry Branch and the forest industry were once again able to increase the forest renewal efforts on burned and cut-over forested lands. In 1988-1989 there was some form of silvicultural activity on 14,489 hectares. Half the programs were carried out by the forest industry and half by the Forestry Branch. The total area regenerated (planted or scarified for natural regeneration) was 8,646 hectares. This represents a 24.8% increase over the previous years.

In the spring and fall of 1988, approximately 15.7 million bare-root and containerised seedlings were planted. The Branch planted approximately 8.8 million seedlings, 60% by tendered tree-planting contractors, and the balance by departmental employees. As in the past, the planting contracts have proved to be very successful and economical, and their use is expected to increase in the future. All the seedlings were produced at the Pineland and Clearwater Provincial Forest Nurseries.

- Scarification of cut-overs for natural regeneration continued during the year. This method of forest renewal has proved to be very successful on many of the jack pine cut-overs. Due to its cost effectiveness, this has become an integral part of the forest renewal program.
- The forest industry used herbicides on an operational basis this year for site preparation and for the release of plantations from vegetative competition. The total area treated with herbicide was 594 hectares.
- Mechanical thinning or release which covered a total area of 546 hectares was carried out in older plantations and young natural stands as part of intensive forest management.
- Silviculture surveys were carried out on 8,646 hectares of cut-over and burned forested lands, in order to identify any non-satisfactory stocked land which would require silvicultural prescriptions to bring them back to forest production. Performance assessment plots were also established in cut-over lands to track the growth of seedlings during the established period.
- Cones were collected throughout the Province (Table FO.13). The major emphasis was on collecting black spruce seed from the remote seed zones, north of The Pas and around Berens River.

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- The Pineland Provincial Forest Nursery shipped 12.5 million seedlings for forest renewal of which containerised seedlings accounted for 2.6 million. About 200,000 jack pine were shipped to Saskatchewan.

The new cold storage facility was used to ship overwintered frozen stock in the spring of 1988. Plans were initiated to convert an additional three shade frames into cold frames for the production of greenhouse transplants. A total of 3.8 million greenhouse and 340,000 bare-root transplants were produced in 1988, over and above the 12.5 million stock.

A total of 428.94 hectolitres of cones was received at the nursery and 237.84 kg of seed extracted in 1988 (Table FO.12).

- The Clearwater Provincial Forest Nursery shipped 4.6 million containerised seedlings to Manfor Ltd.

and the Northern Region. These crops were produced using the 20 greenhouses that are now operational at the nursery. All containerised stock was grown in CanAm multi-pot containers.

To meet the projected 4.8 million seedling requirement in the spring and fall of 1989-1990, 20 greenhouses were sown in June 1988 for an overwintered crop. An additional seven greenhouses were sown in January 1989 to produce the current year's planting of 4.8 million seedlings. The projection for 1990 is 6.5 million seedlings.

- In the Porcupine Provincial Forest, 2 km of road were constructed to access hail-damaged timber, 16 km of the Hart Mountain Road was brushed to clear debris, 7.4 hectares were cleared for blowdown in the Steeprock area to reduce fire hazard, and five hectares in the Cowan Wayside Park were cleared for dwarf mistletoe.

Section 9

Lands Branch

The mission of the Lands Branch is to ensure sustainable development of provincial Crown lands and wild rice resources for present and future generations of Manitobans.

The Lands Branch, through the management and allocation of Crown land resources for a diversity of purposes, contributes to the economic development of the Province. The Branch's support and co-operation with other Branches, Departments and agencies facilitates their effective management of resources and the land base.

The Branch administers Crown lands in Manitoba under *The Crown Lands Act*; maintains a Crown lands register; negotiates outstanding Treaty claims and land settlements with Indian Bands and the federal Department of Indian and Northern Affairs; and administers the allocation of wild rice licences on Crown land under *The Wild Rice Act*.

Economic Development

- At 763,801 kg (1,688,000 lbs.) green, the 1988 wild rice crop reached an all-time record for Manitoba for the second consecutive year (Table LA.4). All areas of the Province experienced a good crop, while bumper crops were found on certain lakes that had not produced for the last four or five years.
- Wild rice development in northern Manitoba continued, with a strong increase in production, from 124,434 kg (275,000 lbs.) in 1987 to 294,118 kg (650,000 lbs.) in 1988. Organizations were being formed to support individual producers with experience, information and funding. This development was supported by the Wild Rice Program through informational workshops, lake assessment, test seeding and on-site extension services with licence holders. The test-seeding program, which was intended to assist northern communities in generating an interest in producing wild rice, was continued in 1988. Potential lakes were selected, test seeded, checked for survival and were production seeded to provide a demonstration site where conditions are favourable.
- The 1988 Whiteshell wild rice harvest program was again planned and implemented with the support of an advisory committee composed of Native representation from the Southeast Resource Development Council, Interlake Tribal Council, Fort Alexander Band and the R.C.M.P. The program involved the designation of zones, with varying dates for hand harvesting and mechanical harvesters.

Outdoor Recreation Development

- The Lands Branch, under the guidance of the Inter-departmental Recreational Development Authority, is responsible for the general implementation and administration of a program to enable the sale of

Crown land to the private sector for recreational and/or tourist development.

- Demand for new recreational opportunities to serve market areas within the Province continues to be active. Land has been identified by both the Crown and the private sector. Negotiations with private developers for the further disposition and development of a number of land parcels are ongoing.

Administration and Enforcement

- During 1988-1989 the Land Administration Section continued to circulate requests for the use of Crown land and to administer the various contracts concerning land uses (Tables LA.1, LA.2 and LA.3).
- In accordance with established statutes, agreements and policy, the Indian Land Claims Section is responsible for the research, negotiation and implementation of land claims settlements in Manitoba (Table LA.4).
- Twenty-three Indian Bands have validated treaty land entitlement claims stemming from the original signing of the numbered treaties, while an additional two are under review by the federal Department of Indian Affairs.
- A reciprocal Privy Council Order was received from Canada accepting Provincial Crown land at God's River and designating it as God's River Indian Reserve #6A.
- Negotiations have been initiated with the Shoal River Band which has requested four parcels totaling 3,419 ha.
- Manitoba has transferred to Canada by Orders-in-Council, land at Brochet for the Barren Lands Band as land exchange, and land at Hughes Lake for the Mathias Colomb Band as treaty entitlement.
- Negotiations continued with the Nelson House Band for treaty entitlement at Nelson House, the Indian Birch Band for treaty entitlement at Swan Lake, the Shamattawa Band for treaty entitlement in north-eastern Manitoba, the Wasagamack Band for treaty entitlement at Waasagomach, the York Factory Band for treaty entitlement in northeastern Manitoba, the Dakota Tipi Band for a land purchase for a reserve at Portage la Prairie, The Pas Band for land exchanges at The Pas, and the Moose Lake Band for compensation lands at Trader Lake under the terms of the Grand Rapids Forebay, and the Cross Lake, Nelson House, Norway House, Split Lake and York Factory Bands for compensation lands under the terms of the Northern Flood Agreement.
- Approximately 90 appraisals involving agricultural Crown lands, local government district lands and a variety of residential/recreational/commercial lots were completed throughout the year.

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- The *Crown Land Registry* continues to provide a record of original dispositions of lands in Manitoba, as well as a record of all transactions related to Crown lands currently administered by the Province. Information was provided daily for legal firms, the Land Titles Office, other Departments and agencies of government, historical societies and the public.
 - The Crown Lands Registry Section continues to explore and implement new methods of disseminating information to the users of the systems as well as enhancing the quality and availability of the registry records. New initiatives included the setting up of a data base for administration of sanitary facilities on Crown and park lands, and the entry of all Crown land classification coding for Agro-Manitoba.

Rural and Community Development

- Negotiations continued involving the exchange of land in various local government districts. An exchange was completed with the L.G.D. of Reynolds involving five parcels of land. A total of 110 parcels were returned directly to the local government districts and 12 parcels were sold to agricultural lessees at the request of the local government districts.
- As a result of an agreement to transfer 448 km of abandoned Canadian Pacific Railway right-of-way to the Province the Lac du Bonnet Subdivision line was transferred to the Province. This line, which consists of 43.52 km of abandoned railway line from Birds Hill to Beausejour, will be offered to adjacent municipalities and landowners.

Parks Branch

The mission of the Parks Branch is to ensure sustainable development of Provincial Parks for present and future generations of Manitobans.

The Parks Branch administers a parks system that provides for conservation and management of fauna and flora, and the preservation of ecological, cultural, historical and other resources therein; develops facilities and services to meet the recreational needs of the public, and enables Manitobans and visitors to Manitoba to enjoy outdoor recreation; plans and operates programs for park visitors and special users; and manages businesses in Provincial Parks.

The Branch fosters an environmental ethic through its conservation and preservation thrusts.

Economic Development

- Work continued on two projects relating to the *Go World Class* tourism agreement. Site planning and public consultations were conducted for a proposed major resort development in Grand Beach Provincial Park. In addition, a comprehensive proposal was prepared and funding approved for the continued redevelopment of the village in Hecla Provincial Heritage Park. This two-year project will result in the refurbishment of several important buildings for eventual use by the private sector, by the Friends of Hecla Island Heritage Inc., and for various park programs. Detailed condition reports with floor plans and photographs were completed for the Tomasson Boarding House, the Hecla Community Hall, the Hecla School and the Sigurgeirson Frame House. These reports also outlined recommendations for restoration, adaptive re-use and future uses. Site work should start in 1989-1990 and be completed in 1990-1991.
- Negotiations also began for the transfer of the operations of the Hecla Golf Course to Venture Manitoba Tours Ltd.
- A student from the Recreation Studies program at the University of Manitoba completed a research project on the needs and use of Provincial Parks by seniors.
- A total of 88 site maps showing trail systems, campground layout and park facilities were printed for public distribution, including 49 that were revised. New maps were prepared for the White Lake Campground, the River Road Heritage Parkway and the Grass River Recreational Water Route.
- A major review of the ARC sites from St. Norbert through to Netley Creek was begun to make them part of the Provincial Parks System, to update the 1985 *Maintenance Plan* and to establish future use and development plans.

- A public tender was completed for a rental service of water-based recreational equipment at Grand Beach Provincial Park.
- Fuel wood sales contracts were negotiated at several locations throughout the Province and the operation of a few Provincial Wayside Parks was transferred to the private sector.
- A marketing unit was established in the Visitor Services Section to provide a systematic approach to marketing Provincial Parks. Development commenced on a three-year marketing plan which focuses on improving visitor satisfaction and heightening the public's awareness of the Provincial Parks System.

Through advertising, the marketing unit continued to promote such regular park programs as Dial-a-site, family vacation cabins, public draws for seasonal camping, and programs at visitor services centres.

The unit continued to seek complimentary promotion by various radio stations and newspapers. Continued liaison with Travel Manitoba resulted in Provincial Parks being given high priority in radio, television and print promotions. The Branch also participated in the 1988 Vacation Mart Travel Show, organized by the Tourism Industry Association of Manitoba.

- The Parks Branch handled over 15,000 public information inquiries at its head office alone.

Public Safety; Property and Resource Protection

- Throughout the park system 229 holding tanks were installed in vacation homes during the year in accordance with current regulations.
- Sewage lagoons and treatment and waste-disposal sites were improved throughout the Province during 1988-1989. A number of additional facilities are in the planning stage.
- A water-quality enhancement program was initiated in Whiteshell Provincial Park with the inspection and inventory of cottage sewage and grey-water disposal facilities. Improvements were made to a number of sewage lagoons, and data was collected for future waste-water treatment. A large refuse disposal site was developed at Falcon Lake.

With an increase in the number of cottagers who wish to install private sewer and water systems for their cottages, the water quality of adjacent lakes and streams became a major concern for both cottagers and the Department.

The Whiteshell District Association and the Parks Branch agreed to a five-year cyclical inspection of all existing or present installations of cottagers' sewer and water systems in Whiteshell Provincial Park. This program informed the public of the conditions of *The Clean Environment Act and Regulations* and assisted the cottager to meet these requirements. The program commenced in June 1988 with the inspection of 624 cottage lots completed, including 139 approvals and inspections of existing installations. An inspection of 455 installations indicated 72 violations of varying degrees. The installations of commercial and non-profit organizations were also inspected. All data collected was entered into a computer system to facilitate corrective action and to keep up-to-date records of all sewage systems in use.

- In the Eastern Region facilities for refuse and liquid-sewage disposal were improved at a number of locations in Nopiming Provincial Park and in the Lac du Bonnet District.

Major repairs began on the sewer lines, pumps and the sewage-treatment plant which serves the Grand Beach townsite and West Beach area.

A midsummer windstorm caused heavy damage in the Grand Beach campground which forced closure of many sites and emergency clean-up operations during the rest of the summer. Furniture was replaced, roads were repaired and boat-launching ramps were improved across the Eastern Region.

- In the Northwestern Region preliminary studies were made for the development of a sewage lagoon at Orok siding to serve Clearwater Lake Provincial Park. The former Cyprus Mine site was identified as a location for a sewage lagoon to serve the cottagers at Athapapuskow Lake. An engineering and design study was carried out on behalf of the Parks Branch and the Department of Northern Affairs for the development of this site.

Clean-up of the Grass River back-country and improvements to the beach were completed.

- Sewage holding tanks were installed at a number of sites in the Northeastern Region. Preliminary work was carried out on the redesign of the present sewage lagoon and on the design of a new cell for the Paint Lake disposal site.

Outdoor Recreation Development

- Under the 1988-1989 development program for Whiteshell Provincial Park, many significant projects were completed to improve park facilities. These included major repairs to the shopping centre building, washrooms and picnic shelters at Falcon Beach, and repairs to buildings at Big Whiteshell, Brereton, White and West Hawk Lakes to improve

conditions for users and to sustain carrying capacities. Other improvements included sign replacement, sanding of beaches, replacement of garbage collection cages, and the purchase of park furniture and playground equipment.

With road gravelling and grade improvements the emphasis was on the South Shore Road at Falcon Lake and the roads in the Nutimik and West Hawk Lake areas.

That portion of Falcon Creek in the golf course was redeveloped to improve run-off and to enhance the landscape.

- In the Western Region, electricity was supplied to a number of campsites at Rainbow Beach Provincial Recreation Park, additional playground equipment was installed and the beach sand improved. Major repairs to the marina, sewer lines and buildings in Manipogo Provincial Recreation Park were completed. In Assinippi Provincial Park, the marina was completed and the park roads were rebuilt. Water wells were redeveloped at a number of wayside parks, and signs were upgraded, buildings were repaired and small equipment was replaced throughout the region.

The games area at Wellman Lake in Duck Mountain Provincial Park was completed. Boat-launching ramps, docks, washrooms and refuse-disposal sites in Duck Mountain Provincial Park were improved.

- In the Eastern Region, in Grand Beach Provincial Park the beach pavilion concession was redesigned to provide improved service, a parking lot for campground visitors was constructed, and the replacement of beach buildings was begun.

The structures in Wanipigow Lake Provincial Recreation Park were renovated. Road repairs and silvicultural work were done in cottage subdivisions in the Lac du Bonnet District and at Manigotagan and English Brook Wayside Parks.

- In the Northwestern Region, dock repairs and the improvement of boat-launching facilities at Cormorant Lake, Rocky Lake and other water-access sites were major improvements in The Pas District.

A new water-distribution system was installed at Wekusko Falls Wayside Park to serve the campground.

- In the Northeastern Region, mechanical equipment of the water system serving Paint Lake Provincial Recreation Park was overhauled and reset due to lower water-supply levels in the Grass River system.

Signs, furniture and washrooms were improved throughout the Thompson District during 1988-1989, with additional washrooms installed at Sasagiu Rapids Wayside Park.

Emergency repairs were made to the Paint Lake marina which was heavily damaged by spring ice.

- Interim management guidelines, various park studies, management planning and work with the Canadian Heritage Rivers System highlighted the year's activity of the Planning Section.
- Interim management guidelines for Duck Mountain Provincial Park were completed, and those for Nopiming Provincial Park were updated. Draft interim management guidelines were developed for Atikaki Provincial Wilderness Park, while those for Birds Hill Provincial Park were begun.
- Several park studies were completed. An area in the Pembina Valley was studied to determine potential for recreational trails. An innovative planning approach was tested using computer modelling. Two reports were prepared in co-operation with the Faculty of Recreation, University of Manitoba.
- A preliminary inventory and survey of trails-use was completed.
- A study of canoeing completed this year compared the type of experience and identification of market potential for canoeing in Atikaki Provincial Wilderness Park with six top canoeing areas on this continent.
- Work has progressed on completing the parks systems plan. For example, Kettle Stones Provincial Heritage Park was approved by the Provincial Land Use Committee of Cabinet and will proceed to Order-in-Council. Proposals for the River Road Heritage Parkway and St. Norbert Provincial Recreation Park were also submitted to the Crown Land Classification Committee for review. Approval is expected in 1989. Further fieldwork was done on the proposed Little Limestone Caves. A legal description was prepared and a request for a temporary reserve was made.
- Preparatory work on the management planning process for Spruce Woods Provincial Heritage Park was begun in 1988. This major planning effort will span two years and involve extensive public consultation. Background reports and draft management plans will be circulated to the public and key interest groups in 1989-1990.
- An initiative to encourage viewing as a non-consumptive recreational use of wildlife was begun in co-operation with the Wildlife Branch and the Department of Industry, Trade and Tourism. An overall study framework has been developed. In addition, the Parks Branch, in co-operation with the Faculty of Physical Education and Recreation Studies at the University of Manitoba, has compiled an inventory of wildlife viewing opportunities in Manitoba's Provincial Parks.

- Plans for equestrian facilities were completed in co-operation with local associations. A horseback riders' campground in Spruce Woods Provincial Heritage Park was designed with assistance from the Friends of Spruce Woods Inc. Parks staff worked with the Manitoba Horse Council to plan an extensive equestrian games area in Birds Hill Provincial Park, which is to be developed to accommodate the 1990 Western Canada Games.
- Several smaller projects were the re-designing of the trails in Birds Hill Provincial Park, a wayside design in Whiteshell Provincial Park, and completion of plans for a cottage subdivision for Paint Lake Provincial Recreation Park.
- Interpretative programs were offered in the summer to park visitors at Falcon Lake, West Hawk Lake, the Alfred Hole Goose Sanctuary, the Nutimik Museum, Grand Beach and Birds Hill Provincial Parks, Hecla and Spruce Woods Provincial Heritage Parks, and St. Norbert Provincial Recreation Park. Winter programs were offered only at Birds Hill Provincial Park. The winter program at Spruce Woods was cancelled due to a lack of funds for staff wages.
- Completed interpretative projects included signs for the buffalo jump at Grand Valley Provincial Recreation Park, the marsh boardwalk at St. Ambrose Provincial Recreation Park, the dockside fishing station at Hecla, and Marsh Lake in Spruce Woods Provincial Heritage Park. The Nimowin Trail Teachers' Guide, developed under contract as a co-operative project with the Manitoba Educators for Social Responsibility, was published. Most existing interpretative brochures were modified to conform to the Branch's "family-look" design.

Administration and Enforcement

- The administration of assignments, recordings for collateral purposes and lease renewals was carried out for 5,448 vacation home lots on Crown land and for 378 private properties in Provincial Parks.

During the last year 363 building permits were issued and 235 21-year leases were issued or renewed. The Variance Committee met once to deal with two applications for non-standard lot development.
- The guidelines in the second edition of *Conditions Governing Vacation Home Lots and Private Land Properties Within Provincial Parks* were discussed with representatives of cottagers' associations. The purpose of these reviews was to improve the administration of lot development and sewage control requirements and procedures. The Whiteshell District Association, the Nopiming Cottagers Association and the Grindstone Cottagers Association were involved in the consultations.

- A lot inventory and sewage disposal system data base was begun to assist with the administration of leases and permits in accordance with the current lot development and sewage regulations. Information obtained from lotholders, and from the Branch's sewage inspection program, will be the data base.
- Existing facilities were improved at various park locations in the Southwestern Region and included upgrading of road surfaces and signs, equipment replacement and water treatment.
- Major new projects in the Southeastern Region included extension of electrical services to St. Ambrose Provincial Recreation Park and the construction of additional washrooms at St. Malo Provincial Recreation Park. An agreement was made with the R.M. of De Salaberry to eliminate a sewage lagoon in the park. A major portion of the sewage system connecting the park to the town was completed last year. Other works included major repairs to facilities and the installation of a wet sewage dump site at Moose Lake.
- In the Interlake Region, the former Provincial Road along the east shore of Hecla Island was realigned and the drainage was improved. A refuse and wet-sewage disposal ground was constructed to serve the Beaver Creek cottagers. Structures at the marina in Winnipeg Beach Provincial Recreation Park were rebuilt. Family vacation cabins at Gull Harbour and in Camp Morton Provincial Recreation Park were upgraded. Hiking trails and signs in the Gull Harbour area were improved. Various park installations in the region were repaired or replaced. Electrical services were extended to Watchorn Provincial Recreation Park, a significant improvement over the diesel-powered generators previously used. Replacement equipment was purchased throughout the region.
- In the Whiteshell Region (South), a heavy-duty truck chassis for the garbage collection units, and a replacement tractor were purchased. The backhoe and major equipment were overhauled. Work began on replacing the maintenance shop at Nutimik Lake. A program to identify and register all boats cached on designated remote lakes in Whiteshell Provincial Park was begun in 1988 and will continue in 1989.
- In the Eastern Region there was major upgrading of amphitheatres, and in Birds Hill Provincial Park, beach patrol officers' radios, traffic counters and major pieces of moving equipment were replaced.
- Major revisions to the *Procedures, Guidelines, and Information Manuals* for St. Norbert Provincial Heritage Park were completed.
- The *Manual for the Management and Care of Artifacts in Provincial Heritage Parks* was completed.

- A comprehensive communications strategy, including extensive radio advertising, was implemented to deter rowdy activities in parks during the long weekend in May.
- In order to improve the efficiency and effectiveness of delivery of its various programs, the Parks Branch was restructured in two phases.

In phase one, effective November 1st 1988, a new component called "Regional Parks Management" was formed to ensure the effective delivery of park programs at the local level to increase park visitors' satisfaction, build a wider and more supportive constituency, and improve management of park services, facilities and resources.

In phase two, effective April 1st 1989, the Branch's head office was restructured by dividing it into five main sections. These sections are

1. Administrative Services: responsible for financial services, leases and permits, regulatory matters, program analysis, and policy and procedures;
2. Planning: responsible for systems and management planning, and site planning and design;
3. Visitor Services: responsible for commercial concessions, interpretation, marketing, and heritage properties;
4. Technical Services: responsible for water and waste management, capital programs, subdivision management and maintenance; and
5. Regional Parks Management: responsible for the effective delivery of parks programs at the local level.

Rural and Community Development

- The Parks Branch has, over the years, removed park lands from municipal jurisdiction in order to address major issues such as taxation and the unclear responsibility for delivery of municipal-type services. With the trend to permanent residency in parks, and increases in rental and service fees, it is necessary to work towards cost-effective delivery of services and minimal annual costs to lotholders and property owners. Procedures were completed for the revocation of the authority of the R.M. of Winchester and the R.M. of Morton over Turtle Mountain Provincial Park. Similar negotiations commenced regarding Lee River Provincial Recreation Park and the authority of the R.M. of Lac du Bonnet over the park.
- Design assistance was provided to the Department of Highways and Transportation and to the communities of Minnedosa and Bissett. This assistance consisted of preparing plans for a truck stop, wayside park and park redevelopment program for the Minnedosa area and a conceptual campground plan for the village of Bissett.

- The Campground Host Program was expanded to nine parks, with 12 hosts volunteering a total of 2,254 hours and making 4,188 personal contacts with park visitors.
- The Descendants and Friends of Hecla Island Heritage Inc. signed an agreement with the Department and became the third Provincial Park co-operating association. A total of \$35,000 in grants from the Department was distributed to the three associations to assist them to become viable financially-independent entities. The Department co-hosted the national biennial workshop of co-operating associations, *Heritage Partnership '88*. As well, a number of co-operative projects with various organizations were started and/or implemented, including the Peace Trail in Birds Hill Provincial Park; the biathlon ski trails in Whiteshell Provincial Park; campsites for horseback riders in Spruce Woods Provincial Heritage Park; extension of the Spirit Rock Trail in Grand Beach Provincial Park, and the Foster's Lager marine patrol at Grand Beach Provincial Park.

Enhancement and Maintenance of the Environment

- A proposal for an ethnographic study of the Tie Creek Basin in Whiteshell Provincial Park was prepared and approved. This project will be completed in 1989.
- Planning studies on the Seal River in northern Manitoba continued in 1988. A co-operative venture between the Canadian Heritage Rivers Board and the Parks Branch resulted in completion of an archaeological assessment and work on a draft management plan for the Seal River. A final plan for the Seal River will be prepared in 1989, thus completing requirements for designation of the Seal as a Canadian Heritage River.

A newsletter on the Heritage Rivers program was prepared and circulated to local communities in the Seal River area.
- A variety of resource management studies and projects were conducted in 1988-1989. Studies on woodland caribou in and around Atikaki, and on elk habitat improvement in Duck Mountain, were continued with several government agencies. A study to evaluate moose browse conditions on Hecla Island in Hecla Provincial Park was begun in co-operation with the Natural Resources Institute of the University of Manitoba. Guidelines for the management of the elk herd in Spruce Woods Provincial Heritage Park and the Shilo area were prepared jointly with the Wildlife and Regional Services Branches.
- Fisheries enhancement projects were carried out in Hunt and Lyons Lakes in Whiteshell Provincial Park.
- A major ongoing project was the restoration of tall-grass prairie at Beaudry Provincial Heritage Park. However, there was poor germination and growth in the plots seeded in 1987 due to the drought in 1988. During the fall of 1988, seed collection (by hand and by machine) was assisted by an individual funded by the World Wildlife Fund (Canada) and the Manitoba Heritage Federation. As a result, a much greater diversity of seed is available for future planting in the park. Co-operation with other agencies on this project will continue next year, with the focus on equipment development and expanded seed plots at the park nursery at the Headingley Correctional Institute.
- A formal agreement was signed with Ducks Unlimited to expand and develop waterfowl habitat in the marsh at the south end of Hecla Island. An advisory committee of representatives from the Parks and Wildlife Branches, the Canadian Wildlife Service and Ducks Unlimited has been established to oversee the development.
- Detailed plans were prepared for the construction of a root cellar in the basement of Maison Turenne in St. Norbert Provincial Heritage Park.
- Building inventory and stabilisation projects were started in Duck Mountain and Asessippi Provincial Parks, and in Spruce Woods Provincial Heritage Park.

Section 11

Regional Services Branch

The mission of the Regional Services Branch is to provide field services in support of departmental programs and legislation to ensure the sustainable development of provincial natural resources.

The Branch enforces resource Acts and Regulations; provides field services to support the development and delivery of resource management programs to the public and other government agencies; operates and maintains Provincial Parks; manages forest-fire prevention, detection, pre-suppression and suppression programs; co-ordinates hunter-safety training; responds to complaints of problem wildlife; and co-ordinates the Department's legislative program.

Branch programs and activities are implemented by staff in eight regions which are in turn subdivided into districts, each with its own office. Regional and district operations are supported by headquarters staff.

Public Safety; Property and Resource Protection

- The Canada-Manitoba Beaver Control program along the north side of Riding Mountain National Park resulted in the removal of 111 dams and 19 beaver, related to 23 complaints. Riding Mountain beaver control was also continued. Staff responded to 105 complaints with 199 dams destroyed and 293 beaver removed.
- The Polar Bear Alert Program at Churchill was successful and no serious human/bear conflicts were registered. Staff responded to 95 occurrence reports during the Polar Bear Alert Program and a total of 35 bears were captured and held in the D-20 building. Some bears were airlifted north to make room in the holding pens for new captures. The remaining bears were released near Churchill after freeze-up occurred.
- Killarney, Brandon, Manitou, Carberry and Turtle Mountain Districts reported no complaints about wildlife. Virden District reported one complaint. Neepawa and Shoal Lake Districts reported 40 complaints.

There were 504 problem wildlife occurrences dealt with in the Southeastern Region, 84 more than last year (Table RS.4). The Special Animal Control Officer working in the Winnipeg District removed 238 nuisance animals compared to 211 in the previous year. The city's Dead Animal Pick-up was called to remove 144 deer (mostly road kills), up from 100 last year.

- Under the Hunter and Firearm Safety Program, 325 volunteer hunter safety instructors trained 2,953 students throughout the Province in the proper handling of firearms. A total of 106,518 persons have received training since the program began in 1964 (Table RS.2).

The average number of firearm accidents per year in 5-year intervals since the Hunter Safety Program was established are as follows:

1964-1968	44.2
1969-1973	56.0
1974-1978	53.6
1979-1983	42.8
1984-1988	26.4 (Table RS.3).

Seven claims were made under the Livestock Compensation Program for hunter-killed livestock. Four of the claims qualified for compensation and a total of \$4,625 was paid out (Table RS.1).

- A total of 981 fires burned 507,782 ha during the year, with several periods of high fire activity (Table RS.7 and Figures RS.3 and RS.4). In early May the Province experienced several days of extremely high temperatures that resulted in major fire suppression efforts. Fires during this period threatened summer homes and residences at Gull Lake and Brereton Lake, with five cottages being destroyed at Brereton Lake. During the middle of June, lightning storms tracked across the Province. These storms, combined with extended drought conditions, created a critical fire problem by June 22nd, when there were 117 active fires. As a result, project fire teams were mobilised to deal with fires at Clearwater Lake, Grand Rapids, Bissett and Berens River. The general lack of moisture prevailed for the balance of 1988. As a result of the drought, the Department was involved in dealing with peat fires during the late fall and early winter. Very little snowfall was recorded in most areas over the winter with the exception of the southeast, including the Winnipeg area. The total expenditure for fire suppression in 1988 was \$24,192,700, the highest cost on record.

Aircraft contracted for the fire season consisted of five CL-215 water-bombers, one Otter and six helicopters. A total of 12,444 hours were flown for fire suppression purposes. Two of the Province's CL-215 water-bombers were equipped to drop foam, and two additional kits were purchased for installation during the winter and spring.

Further testing of the ground-use of foam continued on actual fires through the use of induction systems on power pumps. In addition, several larger-volume pumps were acquired and used to provide sprinkler protection around structures.

Fire training was conducted at the district, regional and provincial levels for several hundred people. The training of the Project Fire Teams was enhanced by a concentrated debriefing related to their use on six project fires during the season. Two of the Project Fire Team's leaders also received a two-week training course at the United States Forest Service Training Centre.

Fire prevention activities continued with two seasonal prevention patrolmen employed, one in the Eastern and one in the Interlake Region. These patrolmen continued to deliver the fire-prevention program to schools, tourist operators, farmers and fire guardians in their areas. In other areas of the Province, the local Natural Resources Officers spoke to numerous groups, using "Smokey Bear" materials from the Canadian Forestry Association.

A review of forest-fire operations was carried out by two teams responsible for comparing Manitoba's prevention, detection and suppression programs with those of Alberta, Saskatchewan, Ontario and Minnesota. Recommendations for improving Manitoba's fire program were to be developed from this review.

- There were 140 fires in the Northwestern Region, surpassing the previous record of 124 in 1980. The area appeared to be in a drought condition that showed no sign of relief. Despite the high incidence of fire, the average size of the fires was only 70.35 ha. In 1980 the average size of the fire was 685.6 ha. The improvement can be attributed to better staff training, better equipment, the highly professional Helitac/Firetac initial attack system, and the increased availability of CL-215 water-bombers. The introduction of foam injectors to the water-bombers was also a factor.
- There were a total of 232 fires in the Northeastern Region, with action taken on 119. The first fire occurred on May 15th and the last one on September 5th, with the total area burned being approximately 156,000 ha. The number of human-caused fires was high in the vicinity of two communities on the eastern side of the Northeastern Region. Education and fire-awareness training programs will be initiated at these communities.

As a result of all staff being involved in fire action throughout the Province, the emergency fire-fighter training program was limited.

The Paint Lake Helitac Base was again equipped with two 500-D helicopters. Helitac crews dealt with 24 fires in the Northeastern Region and with 15 fires in other regions.

- There was no spring wildfire season in the Western Region as April storms dumped 675 mm of wet snow and 62.5 mm of water on the Region. This continued into May as torrential rains caused disastrous flooding in the Swan River valley, Garland, Duck Mountain and Porcupine Hills areas. Rainfall in these areas ranged from 85 mm to 110 mm in May.

A total of 37 fires were dealt with in the Western Region. A fire on Baldy Mountain in the Duck Mountains had the potential of becoming a "Project" fire.

However, immediate action with a water-bomber and helicopter prevented this from occurring.

Thirteen volunteer fire-fighting crews were set up in the L.G.D. of Mountain and took initial action on four fires at no cost to the Department.

- The Eastern Region experienced its worst fire season on record due to the extremely high temperatures and limited amount of moisture. There was a total of 354 fires, of which 263 were caused by lightning and 91 were human-caused. A total of 232,783 ha was burned.

The Fire Prevention Officer in the Eastern Region made a total of 1,163 public contacts, including 313 with honorary fire guardians, in an effort to reduce human-caused fires. Twelve fire caches staffed by volunteers were established in the region, primarily in cottage subdivision areas.

A Fire Hose Rehabilitation Depot was established at Pine Falls. At times the depot worked around the clock to maintain a supply of hose because of the large number of fires in the Eastern Region.

The Gull Lake fire in the early part of the season threatened numerous cottages, caused closure of Highway 59, and the evacuation of Patricia and Beaconia Beaches. The fire was human-caused, but no charges were laid due to a lack of evidence.

- The Southeastern Region experienced a total of 28 fires during the 1988 season. Dry weather conditions throughout the spring, summer and fall kept the fire hazard in the moderate to high range most of the season. Travel restrictions were implemented on April 30th, May 18th, June 7th and July 6th. There was a total of 3,998 ha burned, which consisted of 2,788 ha of forested land and 1,210 of non-forested land. In 1987 there were only nine fires although there were more hectares burned. Suppression costs for the 1988 fire season were \$139,167 compared to \$105,318 in 1987.

The fire at Brereton Lake began on May 1st and consumed 1,300 ha and five cottages before it was brought under control. Travel restrictions and road closures were put into effect at the end of April, and all timber sales and logging operations were stopped. A total of 121 fires were dealt with in the Whiteshell Region during the year, resulting in a well-above-normal loss of 5,860 ha—4,933 forested, 927 non-forested.

A lightning-detection site was located and installed in Hadashville District during August.

- An enhanced public safety/security strategy was initiated at Grand Beach Provincial Park. Amongst other innovations, a new control gate was installed at the east entrance and an enforcement program

was started with the focus on open liquor on the beach. In addition, a "Zero Tolerance" rowdism strategy was instituted for the May long weekend. This program was very well received by the public and staff. Extra staff were brought in to Grand Beach Provincial Park for the long weekend.

Rowdism and vandalism continued to be a problem in some of the parks. However, the concentrated efforts by enforcement personnel on busy weekends appeared to be helping. An area of concern was Beaudry Provincial Heritage Park where there is only a part-time park patrol. The washrooms and structures were continually vandalised and at times nearly demolished.

Administration and Enforcement

- The fiscal year 1988 saw the Turn-in-Poachers Program (T.I.P.) in its fourth year of operation. A total of 615 calls were received, resulting in 80 prosecutions and nine warnings. Since its inception in August 1985, the T.I.P. line has received over 2,260 calls resulting in 408 prosecutions and 94 warnings (Tables RS.5 and RS.6, Figures RS.1 and RS.2).
- A one-minute video program was developed in conjunction with Crimestoppers and was broadcast throughout the Province in the fall.
- During the fiscal year 1988-1989 officer safety training continued to receive priority. Thirty-six Natural Resources Officers completed the Advanced Tactical Driving Techniques Course and 20 completed the Officer Safety and Self Defence Course. At year-end there were only 12 officers who had not taken the driving course, whereas all had taken the safety course.
- A Firearm Safety Training Course was developed during the year and 49 officers were trained in the safe handling and use of departmentally-issued firearms.
- Other safety-related courses included Boat Operation/Navigation, First Aid/CPR, and Transportation of Dangerous Goods. Additional training provided for Natural Resources Officers and other staff included Park Patrol Training, Predator Control, Essentials of Management, Fire Investigation and various computer courses. The Natural Resources Officer Trainee Monitoring Program continued with the recruitment of six trainees during the year.
- A total of 865 guide licences were issued in 1988-1989 compared to the previous year's total of 877.
- The Legislative Services Program of the Regional Services Branch co-ordinated and assisted in the review, development and drafting of legislation for the Department in consultation with the Department of Justice, and assisted in the review and development of legislation for other Departments and the

Federal Government. Provincially, this included co-ordinating the development of final draft Bills to amend *The Wildlife Act*, *The Dutch Elm Disease Act*, *The Forest Act*, *The Water Rights Act*, *The Ground Water and Water Well Act*, *The Ecological Reserves Act* and *The Coat of Arms, Emblems and The Manitoba Tartan Act*. A draft Bill respecting a new Act, being *The Endangered Species Act* was also developed and completed. In addition, the section reviewed and assisted in the development of amendments to *The City of Winnipeg Act*, *The Boating Restriction Regulations* under *The Canada Shipping Act* and *The Manitoba Fishery Regulations* under *The Fisheries Act* (Canada). Assistance was also provided to the Government of Canada in the development of two new pieces of legislation, the *Federal Infractions Code* and *The Plant and Animal Import and Export Act*.

Regulations were developed and enacted under *The Wildlife Act*, *The Forest Act*, *The Ground Water and Water Well Act*, *The Rivers and Streams Act*, *The Water Rights Act*, *The Water Resources Administration Act*, *The Water Power Act*, *The Crown Lands Act*, *The Provincial Park Lands Act*, *The Ecological Reserves Act* and *The Dutch Elm Disease Act*. Assistance was continued to the Office of Legislative Counsel—Regulations, Manitoba Department of Justice, to complete the task begun two years earlier of re-enacting all Regulations administered by the Department into the dual English-French format as ordered by the Supreme Court of Canada in 1985.

- Under the Enforcement and Court Services Program the Headquarters Section continued to be responsible for the co-ordination and administration of the court, offence distribution, warrants, suspension and disposal of confiscated goods by the Department. In the 1988-1989 fiscal year, approximately 5,500 individual files and court documents were processed. The development and refinement of the offence-reporting system continued with 1988-1989 being the first full year of operation of the decentralised system. With the usual minor glitches, the new system is fully operational and is now capable of providing up-to-date data on the Department's offence and prosecutory activities. In 1988 the Branch adopted and implemented a low-tolerance enforcement strategy in Provincial Parks as a method of controlling liquor abuse and the resulting vandalism and rowdism. As a result, a greater degree of crowd control and effective people management in the usual troublesome areas of Grand Beach, Falcon Lake and West Hawk Lake were achieved, and use of our Provincial Parks by safety- and security-minded family groups has been increasing. This was precisely what the Department had hoped to achieve. The spring and summer of

1988 were extremely dry and hot and the resulting high fire-hazard created ideal forest-fire and peat-burning conditions. A number of suspected instances of arson and/or careless burning were investigated and there were several prosecutions under *The Fires Prevention Act and the Criminal Code*. In addition, problems encountered during the Department's 1988 fire-suppression activities further exemplified already known deficiencies in the relevant legislation, namely *The Fires Prevention Act*. A major review aimed at enhancing that legislation was undertaken and is ongoing.

- Enforcement actions in the Northeastern Region showed an increase, with 188 charges and 53 warnings being processed as compared to 112 charges and 67 warnings last year. There was increased monitoring of the activities of tour operators at Churchill to ensure that bear-baiting was not occurring.
- The main enforcement effort in the Northwestern Region was directed at angling and hunting in remote areas of the region. Despite the fact that it was the busiest fire season on record, the number of violations increased from 184 to 206.
- In the Southwestern Region, there were nine patrols which checked 73 fishermen and 156 nets. Fifteen small-mesh and three unmarked nets were located and seized. There were a total of 4,523 anglers checked and a total of 163 charges and warnings laid for an overall compliance rate of 96%.

In the Southwestern Region there were 3,229 big game hunters, 313 migratory bird hunters and 375 upland bird hunters checked, with an overall compliance rate of 97%.

- In the Western Region, the enforcement efforts were focused on commercial and sport fisheries. Fall night-lighting activity was below average in the southern half of the region. The 3"-mesh perch fishery on Lake Winnipegosis required very minor enforcement activity.

Commercial forestry harvesting in the Western Region was again given special emphasis. Crown land violations were dealt with in several districts with a major problem being dealt with in the Waterhen area.

- Throughout the Eastern Region a total of 2,886 anglers were checked, resulting in 185 prosecutions and 14 warnings. A special sturgeon enforcement patrol resulted in two sturgeon poachers being apprehended in the Pointe du Bois area. Both entered guilty pleas in court.

Natural Resources Officers continued to monitor the Eastern Region's woodcutting operations. Forestry harvest in the Region amounted to approximately 16,000 cords.

There were 2,332 big game hunters checked in the Eastern Region with a 98% compliance rate.

Pro-active enforcement resulted in 651 prosecutions and 157 warnings in the Eastern Region. There was a total of 724 wildlife occurrences, of which 248 were related to problem wildlife (Table RS.4). A total of 167 deer were killed by vehicles in the Birds Hill District, of which 76 were on Highway 59. Ongoing preventive options are being explored with the Department of Highways.

There were 147 evictions from Provincial Parks, a 20% increase from the previous year. There were 35 more evictions from Birds Hill Provincial Park than in the previous year.

- Enforcement patrols were conducted in the Interlake Region in an effort to address growing public complaints regarding night-lighting and hunting on private land. In total, 397 charges were laid and 132 written warnings were issued. These totals were similar to those of the previous year. Approximately 40% of the prosecutions/warnings involved *The Wildlife Act*, 20% were related to sport fishing and 20% to commercial fishing. The remaining 20% involved *The Provincial Park Lands Act* and *The Liquor Control Act*.

In the Interlake Region officers checked over 1,700 nets last year and found 258 of them to be illegal. They also checked almost 10,000 anglers which resulted in 117 violations.

Regular patrols in the Lockport area resulted in 1,627 anglers being checked with 131 prosecutions. This represents a compliance rate of 92%. As part of the Lower Red River Fishery Management Plan an enforcement strategy was developed for start-up in the 1989 season.

- Routine enforcement patrols were conducted in the Southeastern Region in an attempt to detect and control violations of the various Acts and Regulations, to monitor hunting pressure and game populations, and to curb vandalism and rowdiness in the Provincial Parks System. There were 2,335 big game hunters, 398 upland game bird hunters, and 451 bird hunters checked. Officers also recorded 1,735 angler contacts. The officer patrol effort within the region resulted in 322 charges and 130 written warnings. There were 1,620 occurrences dealt with compared to 1,474 last year.
- A total of 4,398 anglers were checked in the Whiteshell Region, resulting in 48 charges and 30 warnings. The Boat Sticker Program continued over the winter with nine boats removed from George Lake in March.

In the Whiteshell Region there were 224 charges and 26 warnings issued under *The Liquor Control Act*, 131 charges and 207 warnings for park lands offences, and 14 charges and 11 warnings under *The Highway Traffic Act*.

In 1988, a total of 680 contacts were made in the Whiteshell back-country. Of these only 39 were made in the Wilderness Zone. A total of 85 violations was detected, resulting in 18 prosecutions, 62 written warnings, and five oral warnings. Twenty-nine violations were liquor-related, four were related to parks, 49 to fisheries and three to *Small Vessel Regulations*. The 680 contacts in the remote areas of the park provided an opportunity to deliver on-site education in the no-trace camping ethic, resource law, natural history, and Parks Branch's programs and policies.

There were 3,598 hunters checked in 1988-1989; 2,543 big game, 120 migratory bird and 935 upland

game. Seventeen charges were laid and 10 warnings were issued under *The Wildlife Act*.

In the Whiteshell Region, there were a total of 1,137 occurrences, of which 175 were related to problem wildlife, 433 were regulatory and 529 were non-regulatory (Table RS.4).

The Falcon Lake ambulance had 99 calls during the year in addition to first aid calls. January was an unusually busy month with the majority of calls involving the ski hill and the Trans-Canada Highway.

Enhancement and Maintenance of the Environment

- Elk depredation in the Swan Valley increased significantly during the past year, necessitating the development of new management practices and controls on private land in order to reduce problems to an acceptable level. New programs are being recommended for the coming year to deal with the problem, and longer term solutions are also being developed.

Surveys and Mapping Branch

The mission of the Surveys and Mapping Branch is to provide provincial surveying and mapping systems that support efficient management of Manitoba's land mass to ensure achievement of the Department's mission and roles.

The Branch administers *The Surveys Act (Part II)*; provides legal land descriptions for permits and leases under various provincial Acts; provides and maintains the provincial geographical names program; implements and maintains a provincial system of legal and control surveys; provides a geocoding base for computer land information systems; produces topographical and geographical maps; and maintains a map distribution system, library of aerial photographs and a remote sensing centre.

Economic Development

- Legal plans of survey, township diagrams and plan revisions were provided to meet the Branch's mandate to maintain the legal survey framework and to facilitate the transfer of interests in land.
- Legal surveys for water control projects continued to be handled on a priority basis gauged by the backlog of survey requests and specifically identified needs. Such needs include the perpetuation and protection of the existing Dominion Land Survey framework and the expropriation of property to satisfy the scheduling of a major project. For example, the Dominion City Dykes Protection Survey, initiated in 1968, was finalised during the year. The registration of the plans covering the dykes allowed for the removal of caveats from, and more importantly, the adjustment of taxes on, properties affected by the dyke construction.
- In November 1988 the Branch and the City of Winnipeg signed a five-year agreement, for the co-operative development of integrated surveying and mapping systems within the City of Winnipeg to support property assessment and other land referencing requirements of immediate interest to the governments of both Manitoba and Winnipeg. The agreement expressed and recorded the mutual desire of both governments to co-operate in developing the essential surveying and mapping components, and in enhancing the public usefulness of the data developed.
- As of March 31st 1989 the Branch had derived graphical representations and boundary co-ordinate positions for some 35,000 of the estimated 180,000 land parcels in Winnipeg. In addition, a joint project with the City has been undertaken to develop the digital riverbank data needed to support the parcel boundary program.

- Manitoba and the federal government have introduced a new national horizontal referencing datum called North American Datum of 1983 (NAD83) for the purpose of upgrading the geographical positions of the existing geodetic (survey control) framework and to base them on a datum more compatible with the size and shape of the North American continent as it is known today. During the transition period the Branch will support transformation of other agencies' and the private sector's NAD27 data with technical information, section staff and appropriate applications software. To date, provisional NAD83 positions have been generated for 1,700 survey control stations in the City of Winnipeg.
- Positional data for over 9,000 township section corners has been computed to support referencing needs of Manitoba Hydro and the Forest Inventory Section.
- The Remote Sensing Centre served the needs of 1,310 customers and continued its monitoring role in identifying new applications and developments of this technology for provincial use. The greatest effort over the past year went into projects such as the Crop Information System. From April to September 1988, NOAA Satellite Data from the wheat-growing areas of Canada and Russia were processed into weekly composites using specially developed computer software programs to produce cloud-free images. As a result of having such technology to process this data, additional projects were awarded to the centre. Data for all of Canada was compiled into ten-day composites for the Canada Centre for Remote Sensing. A pilot project was a forest-cover map of Manitoba produced for the Canadian Forest Service to be included in the *National Atlas*. Its success may lead to a contract for similar mapping for all of Canada.
- Using data from the Landsat and Spot satellites, project work was carried out for the Canadian Forest Service in Saskatchewan, for Manitoba Hydro, and for the Turtle River Conservation District. The Image Analysis System was used in off-hours by private sector companies and government agencies, not only from Manitoba, but from Saskatchewan and British Columbia as well.

Outdoor Recreation Development

- The program of updating cottage lot surveys continued with requests from the Lands Branch. The updating allows for the registration of plans in the appropriate Land Titles Office which ultimately provides a vehicle for the sale of the lots to the public.

Administration and Enforcement

A. Surveys Management and Administration

- Land description and consultative services in support of the transfer and acquisition of Crown land were provided for all Crown land transactions, including plans of subdivision, land or mineral exchanges, the Agricultural Crown Land Sales Program, and permits and leases under *The Crown Lands Act* and *The Mines Act*. Also provided were the Consents and Orders of the Minister under *The Municipal Act* and *The Municipal Board Act* to expedite the conveyance of mines and minerals for the purposes of land subdivision (Table SM.1).
- Legal plans of survey, township diagrams and plan revisions were provided to meet the Branch's mandate to maintain the legal survey framework (Table SM.3).
- Enhancement of existing property boundary computer software is ongoing to provide improved efficiency in positional and graphical data development. The section has also purchased a relational data base software program to provide more effective management of Branch data.
- As of February 1st 1989 the Branch has implemented a dial-up facility to access the Winnipeg Land Titles Office's data base. This will provide support to the Field Surveys and Land Description Services staff.
- On behalf of the Director of Surveys, staff issued instructions to all land surveyors conducting surveys affecting Crown land and examined all plans of such surveys.

B. Mapping Support Services

- Topographic mapping of the Churchill area was completed with the printing of three 1:2,000 and four 1:10,000 colour maps of the community and region, respectively. A fifth 1:10,000 colour plot of the Goose Creek area was made available on request.
- The 1:20,000 topographic mapping program in southern Manitoba continued with the photogrammetric compilation of topographic features of over 500,000 ha of land to the north, east and south of Winnipeg. Data validation and field investigation of approximately half this area was also completed.
- Mapping photography was acquired covering 400,000 and 500,000 ha of land to the west and south of Winnipeg, respectively. Also, high-level aerial photography was acquired and photo maps were produced for 47 townships south of Winnipeg.
- A pilot project of co-operative topographic mapping with the Canada Centre for Mapping was initiated. This project will define federal and provincial needs, validate software for the exchange of digital

topographic data, support the development of standards and specifications for digital map data, and evaluate the feasibility of digital terrain modelling in low-relief areas.

- Geographic mapping services that included the completion of 122 projects involving over 300 maps and plans were provided to Departments and agencies.
- Revisions were made to Polling Division Maps (61), Crown Land Maps (4), the City of Winnipeg Base Map (1:30,000), the Porcupine Provincial Forest Map, Designated Vehicle Route Maps and Plans (10), the 1:1,000,000 Municipal and Local Government Districts Map, and eight maps for the *Hunting Guide*.

C. Operational Administration and Services

- Staff responded to 257 requests from all levels of government, industry and the public for technical information and positional data pertaining to the primary and secondary geodetic reference framework. Assistance included ongoing computational support, computer services, applications programming, expertise and geodetic data management, all related to the Branch's surveying and mapping activities.
- Through a vigorous marketing plan which included displays at outdoors-oriented shows in Winnipeg, Minneapolis and Chicago, the sales of maps rose to 63,000. This reflects a 16% increase over 1987-1988, 5% higher than the set goal (Table SM.4).
- A distribution network is now well established. This network was accomplished through a co-operative approach with the private sector. There are now 65 outlets throughout Manitoba, northwestern Ontario and the northern United States. With this system, new products can be introduced in a relatively short period of time.
- Through considerable investigative work and by negotiating with the Financial Services Branch a point-of-sale system was agreed upon and purchased. This system controls sales by programming the cash register with predetermined prices for products by keeping track of inventory levels and by printing out invoices on credit accounts at the end of each month.
- The Air Photo Library contains aerial photographs which range in age from one year (1988) to 66 years (1923). The entire land mass of the Province has been photographed at least once and, in most areas, several times. This is a valuable source for assessing and evaluating the changing landscape. The library will be of increasing value as we move into a sustainable development approach to the management of our resources.

- In 1987 all the negatives of the aerial photographs owned by the Province were brought back from the National Air Photo Library in Ottawa. In 1988, the National Air Photo Library decided not to stock contact prints of these negatives and, therefore, they were donated to Manitoba. Over the year, 7,281 of these prints were sold to customers, generating \$26,124 in revenue.
- There were 32,900 products produced by the photo-mechanical lab in support of the Air Photo Library's customers, the Branch's mapping programs and those of other government agencies.
- An arrangement was negotiated with the Federal Government for the long-term loan of a Log E printer. With two printers available, backlogs on orders for contact prints were cleared much faster. Extensive maintenance work on the two printers allowed the lab to produce high-quality work.
- Staff of the Manitoba Geographical Names Program liaised with the Canadian Permanent Committee on Geographical Names (C.P.C.G.N.) to compile data for an annotated bibliography of Native geographical naming in Canada, including references to their origins and orthography. A review of the responsibilities and goals of the C.P.C.G.N. and the activities of its Secretariat was conducted to help develop a five-year plan for the national co-ordinating authority.

A major research report entitled *A Review of the Names Birnie Creek and Snake Creek* led to the changing of the name Birnie Creek to North Snake Creek.

The public information brochure, *Manitoba's Geographical Names*, has proved to be a most useful reference, particularly for the Department's staff. This document, when combined with the semi-annual Cumulative Supplement to the *Gazetteer of Canada - Manitoba, 1981*, has generated a great deal of interest in the Manitoba Geographical Names Program.

- At the Commonwealth Wartime Aircrew Reunion Banquet held on September 17th 1988, Premier Gary Filmon presented a Commemorative Name Certificate for Commonwealth Lake to Lt. Gen. L. Ashley, C.M.M., C.D., Air Commander, C.F.B. Winnipeg. Commonwealth Lake, located some 210 kilometres northwest of Churchill, was named on December 27th 1974 in honour of the British Commonwealth Air Training Plan. Four islands in the lake are named Kangaroo, Beaver, Kiwi and Lion in honour of the trainees from Australia, Canada, New Zealand and the United Kingdom, respectively.

- On December 5th 1988, at a commemorative ceremony in honour of renowned author, Maurice Constantin-Weyer (1881-1964), a presentation of the certificate for Lac Constantin-Weyer was made to Andre Fauchon, accepting on behalf of Madame Francoise Constantin-Weyer. Mr. Constantin-Weyer farmed near St. Claude, Manitoba, from 1904-1914. He left Manitoba for war service but, gravely wounded, was unable to return due to a long convalescence. In 1928 he was awarded the most prestigious of French literary prizes, the Prix Goncourt for his novel, *Un homme se penche sur son passe*.
- On March 8th 1989, in response to a request from department staff, Allan Johnston Lake was named to honour the Allan Johnston family in recognition of their significant contributions to Manitoba. Allan and Lynda Johnston and their son Dale were killed in an aircraft accident in Whiteshell Provincial Park on January 21st 1989.
- An increasing number of Manitobans and Canadians made trips into the northern regions of the Province to visit features named in memory of World War II casualties.

Rural and Community Development

- Subdivision survey projects were carried out at Baden, Matheson Island, Waterhen, George Lake and Gilbert Plains; the Falcon Lake Riding Stable land parcel; and the registration of the Gimli subdivision and easement surveys.
- Vertical and horizontal survey control was established in the area comprising Townships 1-9 and Ranges 1-16 W.P.M. to support 1:20,000 mapping operations and to define the existing geodetic reference framework. Over 2,500 km of third-order spirit levelling was carried out with 1,600 bench marks being established. Four hundred points of reference were marked and designated as future aerial photo target locations, most of which were coincident with existing Dominion Land Survey monuments to enable future cadastral computations.
- In conjunction with these control surveys extensive retracement and re-establishment surveys of the Dominion Land Survey framework were conducted in selected townships. Such surveys were also carried out in other southern areas resulting in several hundred miles of retracement being completed.
- A joint federal/provincial survey project was carried out as part of a world-wide program to establish accurate orbit parameters for the Global Positioning System. As a result, geodetic control stations were established in Brandon, Winnipeg and Churchill.

Section 13

Water Resources Branch

The mission of the Water Resources Branch is to ensure sustainable development of provincial water resources for present and future generations of Manitobans.

The Water Resources Branch ensures optimum short- and long-term planning for the management of water resources by working co-operatively with other agencies, and by providing support services and technical information. The Branch assists in the expansion and enhancement of the agricultural base; plays a vital role in public safety through flood forecasting and comprehensive flood-protection activities; conducts studies and investigations of water-related issues; and provides engineering services to municipalities and conservation districts.

Economic Development

- The drought experienced in 1984 revealed on-farm water shortages and a need to increase the firm annual water supply on the southern prairies. P.F.R.A., in co-operation with Manitoba Water Resources, initiated a two-phase study of the on-farm water supply situation. Phase I of the study identified water-deficient areas which do not have access to secure alternative sources for either on-farm supply or community/group projects. It also included an inventory of existing and potential drought-proof water sources, e.g. reservoirs, on-farm dugouts, dugouts filled by pumping, as well as an inventory of cattle populations within the specific study areas. Phase II of the study evaluated proposals to alleviate specific problems identified in Phase I. These proposals included improving existing water sources, construction of new surface-water sources and additional development of groundwater aquifers. The Phase II report for Manitoba contained an on-farm water strategy for three areas: Red River, Westlake (Plumas-Gladstone) and southwestern Manitoba. The report was completed in January 1989 and was used by the Water Resources Branch and other agencies in developing water supply strategies for these water-short areas.
- The Oak and Plum Lakes wetlands complex, in the southwestern corner of the Province, has been the subject of conflicting resource interests for the past few decades. One of the main difficulties encountered in trying to solve the conflicts between agricultural and wildlife interests has been the complex topography and hydrology of the numerous marshes known as Plum Lakes. A detailed topographic map of the Plum Lakes area was completed by consultants for Ducks Unlimited and the Canadian Wildlife Service. These agencies, along with the Wildlife and Water Resources Branches, Manitoba Agriculture and local representatives, continued towards preparation of management options using the new maps. A report presenting the options and recommendations to the Oak and Plum Lakes Management Board is expected to be completed by the end of 1989.
- In the past, outflows from several lakes in the White-shell River system have frequently been inadequate to allow effective fish spawning during the spring run-off period. A study was begun in January 1987 to improve the regulation of these lakes to enhance fish spawning. A preliminary operating plan prepared in March 1987 for regulating Jessica Lake and White Lake was used again during the low spring run-off of 1988. The plan was successful in maintaining desirable levels on the lakes over the spring and summer months. Preliminary operating rules were also adopted for Brereton Lake. The same rules for these lakes will be used again in 1989.
- Flows on Pipestone Creek are regulated by the Moosomin Dam in Saskatchewan. Due to high channel losses and a large number of natural channel blockages, releases from the dam have often been inadequate to meet Manitoba's requirements. Pipestone Creek is used for stock-watering purposes in Manitoba and also provides water for the community of Kola. A task force with one member each from the Water Resources Branch and the Saskatchewan Water Corporation was established to discuss problems with water allocation and the operation of the dam. The objective is an agreement which will meet Manitoba's requirements while remaining acceptable to Saskatchewan. The task force completed a report which was submitted to the Manitoba and Saskatchewan members of the Prairie Provinces Water Board for consideration at its meeting on February 21st 1989. Discussions continued regarding the mutual acceptability of the operational plan outlined in the task force report.
- The Pasquia Polder III Project is being developed by the Department. The project will cost approximately \$2.89 million, and will involve the construction of two large pumping stations and approximately 60 km of drains. The project will result in the development of about 95 sq. km of land for agricultural purposes. The project is tentatively scheduled in four phases, over a six-year period, with completion scheduled for the spring of 1994. The Big Lake Control Structure* and approximately 5.6 km of the Pasquia Lake Drain* were completed during 1988-1989.
- Canada and Manitoba together with local representatives, began developing terms of reference for a study to re-examine and update project descriptions and strategies to provide adequate water supplies to the Pembina Triangle in both the short term and the long term.

- An agreement respecting Phase I of the Washow Bay Drainage Project, between Manitoba Agriculture, Manitoba Natural Resources and the R.M. of Bifrost was signed in August 1988. The agreement provides for improving the existing drainage within the Blind Bay area through a system of drains, dykes and portable pumps, at an estimated cost of \$1,138,000 (Province, \$1,038,000, the R.M. of Bifrost, \$100,000). The on-farm drainage component of the project (\$85,000) will be implemented through the existing Washow-Icelandic Soil and Water Management Committee. Right-of-way for the Blind Bay Drain* and laterals was acquired and approximately 17.2 km of drain construction was completed in 1988-1989. Completion of Phase I is scheduled for the fall of 1990. Implementation of Phase II of the project would require a separate agreement. Hydrogeologic conditions were evaluated with regard to possible groundwater discharge into a number of drains in the Phase I area of the Washow Bay Project.

- A study was completed to determine the economic feasibility of drainage improvements to the portion of the Riviere aux Marais Drainage System that is located in Manitoba. The study involved assessing the current capacity of the system, cataloguing the soils, evaluating land use and land capability, providing preliminary design and cost estimates for the necessary drains, and determination of the benefits of the drainage improvements.

- A number of other agricultural drainage and flood-related project studies were undertaken to guide the planning of provincial waterway and municipal drain projects.

- * Navin Drain (City of Winnipeg & R.M. of Springfield).

- * Whitemouth River (L.G.D. of Reynolds).

- * Jarosz Drain (R.M. of Minitonas).

- * East outside drain of the Portage Diversion (R.M. of Portage la Prairie).

- * Boundary Drain* (R.M. of Grey & R.M. of Portage la Prairie).

- * Drainage system serviced by Ditchfield Drain (R.M. of Siglunes and L.G.D. of Grahamdale).

- * Mink Creek Drainage Development (R.M. of Ethelbert).

- * Station Road Drain (Cooks Creek Conservation District).

- * Outlet on Matychak Drain (R.M. of Brokenhead).

- * Vicinity of Lake St. George (Northern Interlake).

- * Buffalo Creek (R.M. of Rhineland).

- * Ashern Drain (R.M. of Siglunes).

- * Lateral to Devils Creek (R.M. of Brokenhead).

- * Saption Drain (Cooks Creek Conservation District).

- * Codnor and Allison Drains (R.M. of MacDonald).

- Investigations were carried out to determine the

necessity of aquifer modification on a number of drainage systems. These included Dubas Creek, Half Mile Drain*, Selkirk Line Drain* and Camper Drain. In addition, periodic work was carried out on aquifer modification projects at Ross Creek and South Lateral Drain in which the Department has a long-term commitment.

**Name unofficial—under investigation.*

Public Safety; Property and Resource Protection

- The Porcupine Hills, Duck Mountain, Riding Mountain and the Pembina Hills together form a distinctive upland region in the southwestern corner of the Province. The steep slopes of these four uplands comprise the Manitoba escarpment. During a study in which 123 potential headwater storage sites were investigated along the escarpment, it was determined that only 12 sites might be effective in reducing flood and erosion damages. According to the economic analysis, however, only four sites warranted further consideration. A site on the North Duck River was recommended to be considered for construction while sites on Fishing River, South Tobacco Creek and Spring Creek were all recommended for further study since they might later prove to be economically viable. Since it was shown in most instances that headwater storage is generally not an economically feasible solution for reducing the flood damages that were confirmed during the study, it was concluded that other flood-damage-reduction measures identified during the study should be considered. It was recommended that initiatives be taken to implement pilot projects in this regard along the escarpment to evaluate such alternatives to headwater storage. These and all of the other recommendations in the report were considered by P.F.R.A. and the Water Resources Branch. In early February the study was distributed to municipal offices and to interested individuals and organizations.

- Under the Canada-Manitoba Subsidiary Agreement on Agri-Food Development a letter of understanding was signed in July 1988 by Canada Agriculture, Manitoba Natural Resources and the Town of Carman to undertake the Carman Flood Protection Diversion to provide flood protection from the Boyne River to the one per cent flood-protection level for the Town of Carman. In September, Canada Agriculture, under the auspices of P.F.R.A. and this Department, agreed to construct the diversion. The estimated cost of the project is \$7 million, including \$900,000 for engineering and project management. P.F.R.A. is to undertake the design and construction of the project and the Province is to secure the required right-of-way. During the 1988-1989 fiscal year the design of the project was initiated and negotiations commenced for the land acquisition.

- During the spring of 1988 the operation of the Red River Floodway and the Portage Diversion was not required. The Shellmouth Dam was operated to reduce flooding along the Assiniboine River.
- Through the application of *Provincial Land Use Policy No. 11*, the Province exercises control over development in areas subject to flooding, erosion, river-bank instability, landslides and subsidence. During 1988-1989, 520 subdivision applications were reviewed and input was provided for four planning documents. Four draft planning documents and 85 zoning bylaw amendments were reviewed. After the 1979 flood the entire Red River valley from Emerson to Winnipeg was designated as a flood area. Any person wishing to build or erect a structure in the designated area must first obtain a permit from the Water Resources Branch. The permit requires that any structure to be built or erected shall be floodproofed to prevent damages up to the one per cent flood-protection level. Fifty permits were processed during 1988-1989. Eighty-three compliance checks were carried out.
- Under the Manitoba Flood Protection Projects Agreement signed on March 10th 1983, the dyking systems at Emerson, Letellier, Dominion City, St. Jean Baptiste, Morris, Rosenort and St. Adolphe were to be upgraded to the one per cent flood-protection level. Total funding provided under the agreement amounts to \$6.1 million and is cost-shared 55% provincial and 45% federal.
- On April 21st 1988 the Court of Queen's Bench found in favour of the government that the taking of the land for the Ste. Rose du Lac Flood Protection Project was fair and just. The right-of-way was secured on May 30th and the majority of the required flood-control works were completed during the 1988-1989 fiscal year. The majority of the works to provide protection for the Souris water-treatment plant were also completed. The outstanding right-of-way at Emerson and St. Adolphe was acquired and the design work for the completion of the dyking systems was completed.
- A headwater storage dam has been proposed to reduce the severity and frequency of flooding along the lower reaches of the North Duck River. A design study was completed in 1988 and the construction cost for the project was estimated at approximately \$600,000. Manitoba Natural Resources applied for an environmental licence in January 1989.
- Flood forecasting during the spring of 1988 was concentrated on the Dauphin River and upper Assiniboine River watersheds. Heavy spring rain produced record floods on many streams in the Swan River area. Six news releases containing status reports and forecasts for rivers, lakes and reservoirs in the area were issued during April and May. High inflows to the Lake of the Prairies resulted in overtopping of the spillway. Flood sheets containing data and forecasts for the Assiniboine River, including the Lake of the Prairies, were issued daily from April 11th to June 10th 1988. The River Forecast Centre provided daily direction to field staff on the operation of the Shellmouth Dam for a four-week period when the spillway was overtopped. This prevented the flooding of agricultural lands along the Assiniboine River downstream from the reservoir.
- During February and March 1989, spring run-off outlook maps were prepared for all of Manitoba. Forecasts of peak flow and/or stage were prepared for 23 locations on the Red, Assiniboine and Souris Rivers, for 60 locations on smaller streams and for 10 lakes and reservoirs. These forecasts were distributed to the media and to all municipalities, cities, towns, villages, local government districts and Indian Bands, flood fighters and government officials.
- The River Forecast Centre contributed to the planning and delivery of a City of Winnipeg Flood Emergency Workshop held on February 23rd 1989. The workshop was sponsored by the Emergency Measures Organization and involved various departments of Manitoba Natural Resources and the City of Winnipeg. The aim was to develop or improve appropriate responses to a major flood threat to the City of Winnipeg. The River Forecast Centre defined the flood threat through a presentation at the workshop.
- A paper entitled *Uranium in Groundwaters in Southeastern Manitoba* was published in the *Canadian Journal of Earth Sciences*. This paper presented an analysis of data from more than 280 wells sampled in southeastern Manitoba to examine the concentration, distribution and source of uranium in groundwaters in this area. Assistance was also provided to the Manitoba Hazardous Waste Management Corporation, with input of hydrogeological information for selected areas of Manitoba. Borehole geophysical studies were carried out in numerous wells including flowmeter logging of a number of in-situ iron-removal wells in the Town of Roblin.
- Development of improved water-supply and river-flow forecasting procedures continued. Computer programs were prepared to effectively display and archive weather radar images and to efficiently obtain meteorological and hydrometric data from outside agencies by computer. Under the Canada-Manitoba Agreement Respecting Flood Forecasting, a formal report on run-off modelling studies was completed. A study to improve forecasting on the Pembina River was completed. Several additional real-time hydrometric gauges were also installed under this agreement.

- Landowners along the Garland River and Wellburns Creek in the R.M.'s of Ethelbert and Mossy River, and the L.G.D. of Mountain have experienced a long history of flooding and erosion problems related to excessive spring run-off or severe summer rainstorms. Local interests favour government action to solve the problems affecting both the Garland River area and the Wellburns Creek area by constructing a controlled diversion from the Garland River to Lake Winnipegosis. In early 1988, at the request of the Branch, P.F.R.A. initiated a technical feasibility study of that diversion. Field surveys were undertaken in early 1989.
- Agricultural drainage activities in the Rural Municipalities of Langenburg and Churchbridge in Saskatchewan have resulted in increased flows downstream. Farmland and municipal drains and road crossings in the Rural Municipalities of Russell and Shellmouth in Manitoba have been affected most. Manitoba continued to hold discussions with Saskatchewan and the Manitoba Municipalities to help resolve the issue.
- Field investigations involving well inventory, water-quality testing and borehole logging were carried out in an area on Henderson Highway, north of Lockport, to determine the cause of deteriorating quality of domestic water supplies.

Outdoor Recreation Development

- Recreational interests have indicated for years that conditions in and around Rock and Swan Lakes would improve if water levels could be raised even marginally, and if water-level control could be improved at Pelican Lake. The cost of such schemes is very high with regulation benefiting recreational users the most. A proposal to approach the Federal Government to financially participate on a 50-50 basis in a water conservation program for Tri-Lakes Enhancement was prepared and approved by Cabinet on November 30th 1988.

Administration and Enforcement

- Additional staff were allocated to reduce the growing backlog of applications under *The Water Rights Act* by Ducks Unlimited to impound water for waterfowl conservation. A significant reduction in the backlog was achieved.
- Manitoba Hydro continued with construction of the Limestone Generating Station in 1988 to fulfil the requirements of its Interim Water Power Licence. Mechanical and electrical work began in the spring of 1988. The concrete and earthwork structures were completed in preparation for flooding of the

upstream portion of the structure in 1989 and closure of the river leg. Approximately 92% of the total concrete for the project has been placed.

- The drought conditions experienced in most areas of the Province had an impact on water rights administration. An emergency plan was implemented to provide instant temporary Water Rights Licences in response to the urgent need to divert and/or impound water for agricultural uses such as stock-watering, filling dugouts, irrigation and spraying crops. There was about a 45% increase over the previous year in the number of applications filed for Water Rights Licences (Table WA.7). Due to the increasing backlog, a system was implemented to give priority to applications for emergency drought-proofing or where government technical and/or financial assistance are conditional on the applicant obtaining a Water Rights Licence.

The drought had little impact on the number of drainage and flooding complaints that were investigated. Since investigation of complaints is the number one priority, each case was assessed and attempts were made to resolve the alleged violation of the Act.

Rural and Community Development

- The Water Resources Branch participated in a multi-disciplinary resource study, along with representatives from Ducks Unlimited Canada, the Wildlife Branch, the Department of Agriculture and the Department of Municipal Affairs, to investigate the feasibility of a wetland development project in the area of the Rat River Wildlife Management Area in southeastern Manitoba. The study team investigated wetland development options that would enhance the area for wildlife and would at the same time alleviate a long-term flooding problem affecting landowners along the Rat River and Joubert Creek systems. Potential construction problems were identified due to the unsuitable soil conditions along the Rat River. Additional soils testing was conducted and a revised feasibility study including updated benefit-cost data was completed. The final *Rat River Wetland Development Task Force Report* was forwarded to the Deputy Minister for consideration.
- Dauphin Lake has long suffered from the processes of erosion, siltation and eutrophication, resulting largely from human activity throughout the watershed. This situation has been a source of concern and conflict among various interest groups for several decades. A study team was established to review and summarise previous reports on Dauphin Lake. A draft action plan for circulation among interested groups and agencies is nearing completion.

- Canada and Manitoba have agreed to expand the capacity of Jackson Lake by 40%. This project would provide an adequate and reliable water supply during extended dry periods for the Towns of Austin and MacGregor, as well as for local downstream landowners adjacent to Squirrel Creek. The project involves raising the existing earth-fill dam by 1.8 metres and construction of a dyke along the north shore of the lake. The total cost of the project is estimated at \$400,000. Manitoba Natural Resources will apply for an environmental licence in the summer of 1989, and completion of the project is scheduled for the fall of 1990.
- Canada and Manitoba have agreed to expand the capacity of Stephenfield Lake by 20%. This project would provide additional water for irrigation along the Boyne River and greater assurance of winter flow at the Town of Carman, in order to satisfy its winter water requirements. The project involves raising the existing concrete spillway of the Stephenfield Dam by 0.6 metres at an estimated cost of \$150,000. Manitoba Natural Resources will apply for an environmental licence in the summer of 1989, and completion of the project is scheduled for the fall of 1990.
- A minor water-quality sampling program was carried out in order to provide some background information for a proposed artificial recharge project in the Winkler Aquifer. This work led to the planning of a more intensive sampling program to be carried out during the spring run-off of 1989. Water-quality sampling was also undertaken on water pumped from the La Salle River through the diversion system put in place for the Elie Artificial Recharge Project.
- Plans were formulated with other Departments and the L.G.D. of Piney in an effort to find a solution to a long-standing flowing-well problem in the Village of Piney.

Enhancement and Maintenance of the Environment

- All major reservoirs were replenished by the 1988 spring run-off. Controlled dams were operated to maintain reservoir levels within their normal ranges. Lake Manitoba remained within the permissible regulated range of 247.15 m to 247.76 m. Dauphin Lake peaked at 260.85 m following the spring run-off and receded gradually to near the lower limit of 260.18 m by December. Lake of the Prairies was drawn down to 425.63 m prior to spring run-off, and peaked at 429.87 m.
- In the fall of 1988, Premier Gary Filmon announced a proposed strategy for land and water at the annual meeting of the Union of Manitoba Municipalities. This initiative has three main objectives: to sustain and enhance resource productivity; to increase job

opportunities; and to improve environmental quality. Under the Land and Water Strategy are several sub-strategies, each addressing individual resources that are inter-related: water, soil, forests, minerals, fisheries and wildlife. Local governments, other organizations, industry and individuals were all encouraged to participate in the process of joining economic and environmental concepts.

- In late January and early February, meetings were held in nine Manitoba communities, including Winnipeg, to introduce the principles of the Land and Water Strategy and to encourage debate and comment. Given the far-reaching importance of water to our economy, water was the first sub-strategy presented. A *Workbook on Water* was distributed to encourage people to comment on the water strategy which includes six draft policies addressing water quality, conservation, use and allocation, infrastructure, flooding, and drainage. Approximately 1,200 people attended the meetings and over 130 informative presentations were received. The message from the public was that since soil and water are so closely linked they should be managed by using an integrated approach.
- A soil strategy, including soil policies, was prepared with the department of Agriculture, and a *Workbook on Soil* was distributed. The workbooks were used to communicate the strategies and to stimulate discussion. Questionnaires are also contained in the workbooks to assist in the refinement of the policies.
- Public consultation and review of both the water and soil sub-strategies continued. A series of 24 workshops throughout rural and northern Manitoba was initiated and a series of four workshops was planned for the City of Winnipeg. The workshops were designed to encourage people to contribute their input into developing a land-and-water strategy for Manitoba. The results should help us manage our land and water resources more effectively, help identify local initiative programs and move towards a better environment in the 21st century.
- The drought conditions experienced during the summer of 1988 created increased demand for more frequent forecasts of groundwater levels as well as widespread concern about the capacity of individual aquifers to meet increased demands. Proposals were formulated to develop aquifer management plans for specific aquifers where existing allocation is approaching or exceeding aquifer capacity.
- Three thousand water-well drillers' reports were received from licensed water-well contractors. The groundwater monitoring network was expanded by installing 10 new groundwater monitoring stations and 12 automatic rain gauges. Data on water levels

and water quality were obtained from the 464 groundwater monitoring stations in operation. All groundwater data was incorporated into a permanent storage and retrieval system. In response to specific requests 365 groundwater availability appraisals and 49 groundwater pollution hazard appraisals were prepared. Numerous telephone inquiries about groundwater conditions in various areas were responded to with specific resource information and advice. Because of drought, several groundwater-level reports were prepared. Groundwater resource reports and development plans were prepared for three planning districts. Several maps and block diagrams for drainage basins were prepared for land-and-water strategy information.

- Studies of regional groundwater systems continued in 1988-1989 with the completion of seven draft groundwater availability maps for the updating of the Neepawa 1:250,000 map sheet area. Work continued on the major study of the Palaeozoic carbonate aquifer system with progress being made in studies of the hydrogeochemistry of the aquifer system and definition of discrete stratigraphic zones of enhanced permeability. The completed paper on the Fort Garry aquifer, a major high-yield zone in the carbonate aquifer system, will be submitted for journal publication in 1989. A map showing the distribution of groundwaters containing excessive fluoride concentrations in southern and central Manitoba was prepared in co-operation with Environmental Control Services for distribution to practising dentists and other health professionals. Office studies of the Winnipeg Formation aquifer in southeastern Manitoba were carried out with maps of the distribution of total dissolved solids and elevation of the formation top being prepared.
- A paper was published on the hydrogeology of the Assiniboine Delta Aquifer. The documentation of the groundwater conditions in the Winnipeg area was brought up to date by the publication of a report in conjunction with the Winnipeg Branch of the Canadian Geotechnical Society. The impact of pumping groundwater from the Assiniboine Delta Aquifer for the proposed West Lake pipeline was evaluated and a report prepared.
- A study was undertaken of the effect on the level and temperature of the groundwater of the Upper Carbonate Aquifer of the stopping of the pumping at the Canada Packers plant in St. Boniface. Aquifer thermal problems were also examined at a number of other sites in the Winnipeg area. Other activities included overall evaluation of groundwater capacity and quality in the Winnipeg, Selkirk, Oak Lake, Glenora, Winkler, and especially the Assiniboine Delta Aquifers.
- Water-level data was gathered at 149 hydrometric stations throughout Manitoba to assist in the operation of water-control structures for flood-forecasting and run-off monitoring and to gather information for hydrologic investigations. Included again was an intensive monitoring of Rat River flows and overflows near Zhoda in the spring of 1988. The data for 47 of the hydrometric stations was contributed to the federal Water Resources Branch for publication in their *1988 Annual Surface Water Report*. A further 323 flow, level and sediment stations were operated by the federal Water Resources Branch under the terms of the Canada-Manitoba Agreement for Water Quantity Surveys. All recorded data was entered into the Branch's computer for use in hydrologic studies.
- Data on water levels and stream flows for 27 lakes, six reservoirs and 29 river stations was compiled and distributed weekly to several hundred users. This included the operational status of six controlled lakes and reservoirs.
- Isohyetal maps of storm precipitation and monthly precipitation were prepared and distributed after each storm and near the end of each month.
- Drought-related parameters such as snow cover, precipitation, run-off, temperatures, evaporation and soil moisture were closely monitored and their present and future effects on water supplies ascertained. Trends and variabilities in precipitation were related to those of past years and decades.
- Reports on the drought and its impacts on surface and groundwater supplies were prepared for the Provincial Drought Monitoring Committee and for the Prairie Provinces Water Supply Conditions Report assembled by P.F.R.A. These reports included information on the likelihood of water shortages arising in the future under specified weather conditions.
- Several news releases were prepared to describe the effect of drought on water supplies and on actions being taken to mitigate water shortages. These were sent to interested parties via the mail and facsimile machine, and to the public via the news media.
- Climatological and hydrological studies and data were provided at the request of clients. Climatological data included provision of statistics on amounts and rates of precipitation, and wind speeds and evaporation, while the studies involved determination of the effects of these parameters on run-off, stream flow and lake levels. Hydrologic studies included the hydrology of the North Duck River, an assessment of the impact of the proposed Carman Diversion, and an estimation of the impact of the proposed Rafferty and Alameda Dams in Saskatchewan on flows in the Souris River in Manitoba.

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- The River Forecast Centre prepared forecasts of river flows and stages for the Red, Assiniboine and Souris Rivers during the drought of 1988. Particular emphasis was on the Red River where flows declined to near-record lows, threatening town water supplies. Accurate forecasts of minimum water-levels prevented unnecessary, costly expenditures for emergency upgrading to secure town water supplies on the Red River. The River Forecast Centre also prepared numerous long-range forecasts of lake and reservoir levels, particularly where water supplies were seriously threatened by drought. This facilitated the operation of control works and the formulation of recommendations with respect to water rationing and the development of alternative water sources.
 - The Fork River Watershed experiences many water-related problems such as flash flooding and erosion, typical of a subescarpmental area. In addition, the Loon Lake Marsh, which helps attenuate flood peaks and reduce sediment loads that emanate in the escarpment, is a concern to some local residents because of its impact on nearby agricultural land. A study to develop a watershed water management plan was begun in 1987, and was expected to be completed in late 1989.

Wildlife Branch

The mission of the Wildlife Branch is to ensure sustainable development of provincial wildlife resources for present and future generations of Manitobans.

The Wildlife Branch manages wildlife resources on a sustainable basis for outdoor recreational opportunities and economic benefits. The Branch develops and implements management programs to ensure the wildlife resource is passed on in at least as vigorous a state as it was received by the present generation; it delivers programs that provide for commercial, recreational and subsistence uses of the wildlife resource; implements programs to alleviate wildlife damage to people and property; and promotes the use of wildlife for scientific and educational purposes.

Economic Development

- In a co-operative venture with the Department of Industry, Trade and Tourism, the Wildlife and Parks Branches began work to establish a major wildlife viewing industry in Manitoba. The initiative is in response to growing public interest in wildlife viewing; and with an abundant and varied wildlife resource, Manitoba has the attributes needed for a successful program. Wildlife viewing will provide protection for local wildlife populations and enhancement of regional economies. Existing opportunities to view wildlife, such as polar bears and whales at Churchill, moose at Hecla Island and Turtle Mountain, birds at Oak Hammock Marsh, and snakes in the Interlake area, have already received considerable international attention. These sites will form the natural centre-pieces for a more extensive wildlife-viewing system.
- The Non-resident Black Bear Allocation Program, whereby non-resident (non-Canadian) black bear licences are allocated with operating areas to lodge owners and outfitters was functional in all or portions of five regions in 1988-1989. The objectives of the program were to regulate the non-resident harvest of black bears, maximise the use of available resources and maximise economic returns to the people of Manitoba. In total, 1,047 licences were allocated to 89 operators. This consisted of 189 licences to 21 operators in the Northwestern Region; 25 operators and 413 licences in the Interlake Region; 25 operators and 318 licences in the Western Region; and 18 operators in the Eastern and Southeastern Regions. It is estimated that the non-resident black bear hunt will generate in excess of \$2 million in Manitoba. This money is mainly distributed to rural economies.
- During a two-week snake-picking season, 82,268 red-sided garter snakes were captured live and sold to biological supply houses in the United States. A three-month leopard frog season resulted in the sale of 1,138.5 kg (2,516 lbs.) of frogs.
- Manitoba trappers harvested \$2.5 million worth of fur in 1988-1989, a \$2.6 million decrease from last year. This decrease was attributed to a number of factors including an oversupply of pelts because of last year's carry-overs, a drop in prices, poor demand for coyotes, foxes and raccoons, and the reduced number of muskrats due to drought conditions. Low pelt prices severely affected the spring harvest of beaver and muskrat because it was uneconomical to trap them. Most fur-bearer populations, except muskrat, remained stable. Mange was reported in several coyotes taken from the South-western and Western Regions (Table WI.4).
- Trapper education staff conducted 15 fur schools involving 300 trappers. Public awareness presentations were provided to 17,500 students in 175 schools. Trapline officers conducted courses on humane trapping and fur conservation in several northern communities. Four training sessions were held at the Wallace Lake Experimental Trapline Facility. Participants included native youths, Natural Resources Officers and members of the Canadian Armed Forces. Natural resources students from the Keewatin Community College in The Pas and resources students from the Frontier Collegiate in Cranberry Portage participated in courses at the Tramping Lake facility.
- *The Wild Fur Policy* was approved by the Minister of Natural Resources and distributed to all field offices for implementation. The fur program, cost-shared with the Federal Department of Indian & Northern Affairs, continued to provide financial and staff resources to the Fur Institute of Canada and assisted the Manitoba Trappers Association through a \$60,000 grant.
- Commercial exploitation of the captive wood bison at Waterhen continues as a major objective and largely hinges on success in down-listing the status of wood bison with the Committee on International Trade of Endangered Species, and eventual de-listing. A small number (11) of wood bison were sold in 1989. However, C.I.T.E.S.'s regulations largely restrict sales to Canada. A more lucrative market is presumed to exist in the United States. The continuation of the Waterhen project is dependent on economic self-sufficiency.
- Development activities in Wildlife Management Areas during 1988 included boundary line delineation, sign placement and access construction. Wildlife habitat enhancement projects included establishing forage plots, nesting-cover plots, watering holes and shelter belts. Numerous information and extension activities were undertaken, including interpretative programs at the Narcisse Wildlife Management Area and the Oak Hammock Marsh Wildlife Management Area. Interpretative and

information signs were erected at Grants Lake, Thalberg Bush and Holmfield Wildlife Management Areas.

- Duck banding was continued on Dauphin Lake in 1988 where over 2,200 birds were banded. Banding of this population provides an indication of harvest distribution as well as survival/mortality rates. This information aids in managing waterfowl populations on a continental basis.

Public Safety; Property and Resource Protection

- The Branch continued to prevent black bear damage to beehives by removing problem bears from the vicinity of bee yards. As a result, compensation payments for bear damage to bee yards was limited to less than \$12,500 in 1988-1989. In addition, 40 grants of \$100 each were made available to beekeepers who installed bear-proof electric fences around their bee yards.
- Scaring devices and repellents were used to protect crops from elk and deer. Winter intercept feeding was again used as an alternative food source to reduce deer and elk damage to crops or stored feed. Compensation payments for deer, elk and black bear damage to farm crops amounted to \$126,000.
- Due to a dry summer and fall, crop damage by waterfowl (mainly geese) was less than normal. The Waterfowl Crop Damage Prevention Program's costs of \$326,000 were shared equally between Manitoba and Canada.
- The Federal-Provincial Riding Mountain National Park Beaver Damage Control Program was undertaken again this year in accordance with a 5-year agreement running from 1985 to 1990.

Outdoor Recreation Development

- Recreational hunting remained popular in 1988-1989. Some 57,399 big game hunters harvested 1,280 moose, 23,258 deer, 327 elk, 900 black bears, 79 woodland caribou and 10 timber wolves. In that same year 31,259 residents and 5,299 non-resident game-bird hunters took to field and marsh.
- Manitoba introduced a licensed barren-ground caribou hunting season in the extreme northern area of the Province in 1988 for the first time in 30 years. This became feasible with the rapid increase of the Kaminurik barren-ground caribou herd in the early 1980's and the movement of a large number of the animals into traditional pre-rutting and wintering areas in Manitoba. The season, developed in consultation with the Caribou Management Board, was restricted to 150 licences on a draw basis, applied for from across the province, but northern residents happened to receive the majority, about 70%.

Hunter activity and success in the early part of the season was good but dropped considerably in the latter part because of a poor freeze-up which affected the movement of the caribou which remained further north and resulted in extremely poor travel conditions for hunters.

- The continued drought of the 1980's appears to have had an impact on upland game birds as well as waterfowl. A number of other factors, such as deterioration of habitat, reduction in availability of insects, and disturbance during the summer, appear to have caused a reduced survival of young which showed up as low immature-to-adult ratios in the harvest. Hunter interest in grouse was renewed as a direct spin-off of poor duck numbers. The Branch supported programs designed to improve grouse habitat in Wildlife Management Areas.
- Concern for decreasing duck populations in southern Manitoba resulted in further restrictions on the harvest of mallards, pintails and canvasbacks during 1988 and 1989. These measures were designed to protect local breeding populations during a critical period of depressed habitat conditions. The number of Manitoba hunters has continued to decline while the number of non-resident hunters has remained stable. Manitoba is progressing towards co-operative habitat initiatives under the North American Waterfowl Management Plan.
- Most goose populations remained stable or increased during the 1980's. Waterfowl hunting is now directed more toward geese than ducks. Generally, geese hunters have been more successful, largely due to more geese remaining longer in staging areas in southern Manitoba.

Administration and Enforcement

- Non-resident (non-Canadian) moose licences and areas of operation for lodge owners and outfitters were allocated under the 1988-1989 Non-resident Moose Allocation Program. The distribution of 92 licences, a modest increase over the 1987-1988 figure of 85, was also co-ordinated under this program. The potential for increased sales of licences to non-residents is severely limited by the lack of resources in many areas and priority commitments to subsistence and resident sport hunters.
- Strategic planning for the complete Wildlife Management Areas system was initiated with the preliminary report expected by the summer of 1989. This plan is expected to have Province-wide policy implications as current goals and objectives for land assembly and management are being evaluated.
- Branch staff continued to provide wildlife-related land-use planning recommendations to the Planning Districts, Conservation Districts and the Crown

Land Classification Committee. Over 300 land-use requests, including proposals submitted under *The Environment Act* and hunting area allocations to lodges and outfitters, were reviewed and processed. In addition, a complete review of the planning status of all wildlife-designated lands was initiated. Branch staff also liaised with the Department of Highways and Transportation and Manitoba Hydro to develop recommendations for reducing the impact of proposed developments.

- Data on subspeciation of the goose harvest was collected at Oak Hammock Marsh. The manner in which hunter statistics were collected was reviewed with the intention of introducing new techniques in the fall of 1989. The estimated harvest of Canada geese at Oak Hammock Marsh was 4,200, the second lowest on record.
- A major review of the statistics program and storage costs was emphasised during this fifth year of operation. Further modifications were initiated to enable more direct access to the mainframe from the Wildlife Branch office. An interim report is now generated in July to assist in trapline allocation. This is in addition to the final detailed and summary reports which provide information on individual licence-holder harvest as well as distribution of furbearer capture and value by species and by area. There has been a reduction of approximately 30% in licence sales and near 50% reduction in harvest from the 1987-1988 fur year to the 1988-1989 season (Table W1.5).

Rural and Community Development

- The Beverly-Kaminuriak Caribou Management Board implemented a caribou management plan developed in consultation with the public. As well, poster and prose competitions on caribou management and use were conducted for primary schools on the caribou ranges in Manitoba and Saskatchewan. Issues such as review of the Thelon Game Sanctuary, commercial caribou quotas, and proposed uranium mining were dealt with by the board, and continue to be monitored.
- The Branch assisted the Wildlife Management Division of the Northwest Territories in undertaking a calving ground survey of the Kaminuriak barren-ground caribou herd. The Branch provided an aircraft, piloted by one of Manitoba's non-government representatives on the Caribou Management Board, and staff. The purpose of the survey was to estimate the number of caribou on the calving ground from which a population estimate can be developed. The survey, using aerial photography, resulted in a population estimate of $220,000 \pm 76,000$. It is believed that the herd has remained relatively stable since 1983.

- A four-year co-operative moose-management program involving Treaty Indians and licensed hunters operated successfully in Game Hunting Area 8 east of The Pas, to help restore a depleted moose population. The moose population in this 3,300 sq. km area declined from 1,500 animals in the early 1970's to 400 animals by the mid-1980's due largely to over-hunting. Voluntary cessation of hunting by Treaty Indians, licensed season closures, monitoring of the timber wolf population and habitat enhancement are part of the program to restore the population. Long-term management objectives include resumption of regulated harvest, moose habitat improvement programs, timber wolf population monitoring and continued user-group involvement in moose management.
- The Skownan Moose Management Board continued to face challenges, including concern expressed by the board about an increase in moose hunting by a minority of Treaty Indians. This activity came at a time when the population was showing signs of increasing. Surveys revealed that the moose population has experienced a substantial decline in the area and that continued harvest could jeopardise herd growth.
- The 1988 Polar Bear Alert Program started in mid-August and ended in late November. There were 111 occurrences reported in the Alert Program area, of which 70 were reports of bears in or within one kilometre of the Churchill townsite. Thirty-five bears were captured in the area and housed in the polar bear holding compound. Only one bear had to be destroyed by Department staff and a second bear died of unknown causes in the holding compound. One bear was shot by a Churchill resident. Results of a questionnaire sent to all Churchill residents showed that 96% of the respondents were satisfied with the Department's delivery of the Polar Bear Alert Program.
- The Habitat Enhancement Land Use Program (H.E.L.P.) continued as a holistic approach to land-use management in western Manitoba's prairie pothole district. Some 1,220 ha of wildlife habitat were leased through 25 landowner agreements since May 1988. An additional 320 ha were pending, and should be under lease in 1989. The program has an objective of protecting 3,600 ha under lease agreements by April 1st 1991.

Pasture management projects aimed at livestock and waterfowl production were initiated, and negotiations to purchase land were under way.

A local business was successful in getting the tender for production of duck nest baskets for H.E.L.P. Arrangements were made through local 4H clubs to install 200 nest baskets in the project area.

A detailed report on the 1988 biological evaluation activities was completed in March 1989. It provides baseline information on waterfowl nest success, pair-population densities and brood production in the project area.

Other initiatives included a landowner attitude study which established a baseline on landowner perceptions toward wildlife, habitat, and soil and water management. Questionnaires were sent to every farm household in the municipality.

A brochure was produced and distributed throughout the R.M. of Shoal Lake as well as to other conservation organizations, agencies and interested persons. In addition, a display on the H.E.L.P. project was set up at the Manitoba Winter Fair in Brandon from March 27th to April 1st 1989. It was seen by some 100,000 people.

H.E.L.P. staff have met with the local Municipal Council, a local advisory committee and staff representatives of Manitoba Agriculture, P.F.R.A. and Ducks Unlimited on an ongoing basis. Numerous presentations on H.E.L.P. have been made throughout Manitoba to wildlife clubs, agricultural societies, Conservation Districts and a soil-and-water management association. A number of presentations have also been made in conjunction with local agricultural representatives meeting with farmers on the anticipated "soil accord" funding.

- A planning document entitled *Management Guidelines for the Cape Churchill Wildlife Management Area* was published in July 1988. This plan, the second edition for this 1.9 million-hectare Management Area, involved widespread public participation including numerous meetings with interest groups as well as open public forums, and the involvement of a citizens' advisory committee.
- The management of wildlife habitat on rights-of-way in 1988-1989 focused on implementing the Conservation Corridor program. Its purpose is to maintain or restore tree, shrub or grass cover along undeveloped municipal road allowances. The local municipal council implements the program by enacting a rights-of-way bylaw stipulating that specified undeveloped road allowances are to be preserved in their natural state. During 1988-1989, presentations were given to members of all municipal councils in Manitoba. The production of a display was also completed and staffed at appropriate summer and winter fairs. To date, approximately 10 rural municipalities have enacted bylaws. New initiatives proposed for 1989-1990 include investigating the potential wildlife benefits of other rights-of-way lands such as provincial drains and power lines and initiating discussions with the Department of Highways to reduce right-of-way

maintenance associated with Provincial Roads and Provincial Trunk Highways.

- A five-year co-operative project involving Manitoba, Wildlife Habitat Canada and the Habitat Heritage Corporation was initiated in 1988. Its purpose is to enhance elk habitat in Duck Mountain Provincial Park and Duck Mountain Provincial Forest through prescribed burns on specific sites. The re-establishment of grasslands within the Duck Mountain area will enhance winter habitat and reduce elk depredation on crops adjacent to Duck Mountain. Under the five-year agreement, 50% of the project cost of \$200,000 is provided by Wildlife Habitat Canada and the balance divided equally between Manitoba and the Habitat Heritage Corporation.

Enhancement and Maintenance of the Environment

- Manitoba has developed an implementation plan that is estimated to cost \$134.3 million over a 15-year period to meet the objectives of the North American Waterfowl Management Plan (N.A.W.M.P.). The N.A.W.M.P. has cost-sharing formulae that obligates Manitoba for approximately 10 per cent of total costs. Manitoba's commitment to rebuild mallard and other duck populations features an intensive habitat development program. This long-term program emphasises land-use changes, soil conservation and water conservation that will demonstrate their values for the land and for waterfowl production throughout agro-Manitoba. An agreement to implement the N.A.W.M.P. through the Prairie Habitat Joint Venture was developed for signing by the Ministers of Natural Resources for Manitoba, Saskatchewan, and Alberta; the Minister of Environment (Canada) and the North American Wildlife Foundation, Wildlife Habitat Canada and Ducks Unlimited. This agreement will set up mechanisms for the transfer of funds between partners to initiate programs under N.A.W.M.P. Manitoba continued efforts to implement the N.A.W.M.P. through memberships and active participation in the Prairie Habitat Joint Venture Committee and the Manitoba Implementation Committee. Implementation of the N.A.W.M.P. in Manitoba, enhanced by complementary objectives of federal and provincial agricultural conservation programs, is an outstanding working example of sustained resource management with direct economic local benefit. Partial funding of the Phase One project in the Minnedosa pothole region was authorised by Canada in 1988. Further commitments from Manitoba and all other parties, are required to continue the Phase One project.
- Manitoba's 1988 National Wildlife Week program sought to enlist the support of Manitobans in addressing the habitat problems confronting wildlife. Focusing on the theme "Conserve Habitat Today

- for Wildlife Tomorrow," Manitoba's working group organized a doodle poster, free-style poster and prose contest for students in grades three to eight. The 65 winning entrants received prizes from the Director of Wildlife at an awards ceremony in Winnipeg. Satellite groups in Portage la Prairie and Roblin sponsored regional wildlife poster contests. The working group also organized a bird house and bird feeder contest. Some 3,500 announcements, 30,000 doodle posters and 4,500 teachers' kits were distributed through the school system as part of the National Wildlife Week program. During the week 30 wildlife displays were staffed by 300 volunteers in Winnipeg, Portage la Prairie, Brandon and Dauphin.
- The Oak Hammock Marsh Wildlife Management area attracted some 83,000 visitors in 1989, making it one of the most visited wetlands in prairie Canada. Out-of-Province visitors hailed from 34 countries, 35 states and most regions of Canada. Staff completed the final phase of display development in the information centre and initiated a successful volunteer program. From July to October 1988, 27 active volunteers contributed over 640 hours to marsh management and visitor service programs. Staff produced two newsletters and developed a one-page colouring sheet.
 - The world-renowned Narcisse snake dens continued to attract large numbers of visitors during the three-week snake-mating season in spring. A series of information sheets on Manitoba's Wildlife Management Areas was begun to make recreationists aware of the location and significance of individual areas. The series of one-page sheets, when complete, will cover all of the Province's Wildlife Management Areas.
 - Wildlife displays were set up and staffed at some 25 events throughout the year. Five new displays were produced, including the Province's Undeveloped Road Allowance Conservation Program, the Burrowing Owl Recovery Program, the Habitat Enhancement Land Use Program, and the North American Waterfowl Management Plan. A 16-mm film was produced in conjunction with the Manitoba Habitat Heritage Corporation on stream channeling, and another with the Manitoba Naturalists Society on tall-grass prairie. Staff also produced a one-page nest-box plan for burrowing owls and a colour brochure on the Province's Burrowing Owl Recovery Program.
 - The Minister of Natural Resources presented wildlife awards to 19 Manitobans in recognition of dedicated service in the field of wildlife management. The four-category program acknowledged Manitoba residents, non-residents, conservation organizations and corporations who have contributed to the well-being of the Province's wildlife resources.
 - The Branch continued with its involvement in Project WILD, a nation-wide educational program designed to introduce wildlife-related activities into the school system. The program is sponsored in Canada by the Canadian Wildlife Federation and delivered by the Wildlife Branch in co-operation with the Department of Education.
 - During the 1988-1989 fiscal year, 11 workshops were provided for some 200 educators and leaders of youth groups. In October, Manitoba hosted the National Project WILD Co-ordinators Conference in Riding Mountain National Park. A facilitators workshop was held in March at Hecla Island to train staff and teachers who will in turn provide workshops on behalf of the Branch. There are now over 30 facilitators trained to provide Project WILD workshops, and it is anticipated that the number of workshops conducted in the next fiscal year will increase significantly. The Project WILD Activity Guide was produced in French. Eight of the facilitators are capable of running workshops entirely in French.
 - Two types of feeding of white-tailed deer occurred in Manitoba during 1988: intercept feeding and emergency feeding. Intercept feeding is the strategic placement of feed to lure deer away from stored grain and hay. The extent of intercept feeding depends on the severity of winter and the availability of natural forage. Emergency feeding is the provision of feed for deer during severe winters to prevent widespread suffering.
- Drought conditions during the summer of 1988 resulted in deer entering the winter in less than ideal condition. A blizzard on January 7th and 8th 1989 resulted in deep snow in parts of southern Manitoba where deer could have starved. Expenditures of up to \$325,000 were approved for an emergency feeding program.
- The area in which deer-feeding took place was situated south of a line from the Saskatchewan boundary through Melita, Carman, Winnipeg, the south end of Lake Winnipeg and east to the Ontario boundary. The program was delivered on a co-operative basis between the Department and private citizens. Approximately 350 people volunteered their time throughout the project and countless others contributed over a shorter term.
- About 9,000 deer were fed at 150 sites in the South-western Region and about 5,000 deer were fed at 90 sites in the Southeastern Region. The food was mainly a pellet ration that was developed to suit the nutritional requirements of deer. Approximately 250 tonnes of feed were consumed by deer under the emergency feeding program. Feeding ended when deer began to move away from feeders at spring green-up, during the first two weeks of April. There were few reports of weakened or starving deer.

- A permit system for commercial tour operators using the Cape Churchill Wildlife Management Area for viewing and photographic excursions was introduced in 1988. The permit system was necessitated by the rapid growth of the industry (with up to 11 vehicles using relatively small areas at the same time), and concerns expressed by local residents, tourists and tour operators. Complaints were focused mainly on the environmental damage resulting from vehicle activity, the quality of the tour and the possible negative impacts on wildlife. Guidelines and conditions were developed in consultation with the local operators with the understanding that they would be reviewed and refined both in 1989 and 1990. Initial reports were that the permit conditions did not adversely affect or detract from the excursions.

- Manitoba's large marshes are being reviewed by the Heritage Marsh Advisory Committee under the Heritage Marsh Program. Seven marshes have been designated as Heritage Marshes, including Oak Hammock, Grants Lake, Proven Lake, Saskeram, Summerberry, Delta Marsh and Lidcliff. The last two were declared Heritage Marshes in June 1988 during Ducks Unlimited's 50th Anniversary celebration.

Ducks Unlimited has maintained an active program in Manitoba. The largest project successfully launched in 1988-1989 was the Saskeram Heritage Marsh Wildlife Management Area's Reader-Root project. Seven other projects involving 589 hectares of Crown land were reviewed and approved by the Branch.

Manitoba initiated a multi-project concept under the Heritage Marsh program that includes consideration of the Rat River Project, the Two Island area in the Tom Lamb W.M.A., East Whitewater Lake Project, Delta Marsh, Grants Lake W.M.A., Lidcliff Heritage Marsh, and a part of the Saskeram Heritage Marsh known as the Nestle-Watseskwapi Lakes Area. Development of these projects would incorporate 57,275 hectares of extremely valuable wetlands habitat.

- The wood bison project at Waterhen began in 1983, following a protracted period of negotiations and planning. It was multiple-agency funded, largely under the auspices of the Northern Development Agreement and Indian Affairs Canada. Consistent with direction from the Western Wildlife Directors, a status report on wood bison was prepared and submitted to the Committee on the Status of Endangered Wildlife in Canada. The result was the down-listing of the status of wood bison from "endangered" to "threatened." The Waterhen Project has contributed to the status change. Following in-

ital poor breeding success, attributed to the need for environmental adjustment, 25 calves were born in 1988. Thirty-five calves are expected to be born in 1989. There are presently approximately 200 wood bison at Waterhen. It is the third largest herd of wood bison in the world. In June 1988, some of the progeny born at Waterhen were released in the wild to help establish a wild herd. Unfortunately, this first attempt had to be abandoned when the animals wandered too close to agricultural development. A further attempt to establish a wild herd is being planned, and the Wood Bison Recovery Team is developing a plan aimed at complete de-listing of wood bison.

- The Manitoba Habitat Heritage Program was introduced in 1984 to promote public awareness of wildlife habitat trends in Manitoba and to provide financial support for projects designed to conserve, restore and enhance fish and wildlife habitat. The program is implemented by the Manitoba Habitat Heritage Corporation under the administration of a nine-member board of directors. Governed by *The Manitoba Habitat Heritage Act*, the corporation may singly, or in co-operation with other agencies, purchase or lease wildlife habitats and undertake projects designed to restore or enhance wildlife habitats. Branch staff continued to provide professional and technical support to the Habitat Heritage Corporation.

Habitat Heritage projects in 1988-1989 included the protection of 5,000 acres of privately owned wildlife habitat under five-year Habitat Protection Agreements with 34 landowners. An additional 220 hectares of wildlife habitat received permanent protection through acquisition by the corporation. Habitat enhancement projects included the establishment of food plots on acquired Habitat Heritage lands and the placement of nesting structures for saw-whet, screech and burrowing owls. In addition, several prescribed burns were undertaken in the Duck Mountain area to enhance elk habitat. Co-operative projects undertaken in 1988-1989 included the preservation of a tall-grass prairie site and the acquisition of a parcel of land containing garter snake dens.

- The number of Wildlife Management Areas increased to 69 in 1988 with 10 new ones added. Seven of these areas are in southern Manitoba and total 864 hectares in area. The remaining three areas in the Eastern and Interlake regions of Manitoba total 85,584 hectares. In addition, 1,649 hectares were added to six existing W.M.A. in southern Manitoba.
- The Deer Habitat Program focuses on the acquisition of critical deer habitat in areas of southwestern Manitoba where remaining habitats are vital to

viable deer populations, and on the enhancement of existing habitats. In 1988-1989, two quarter sections of white-tailed deer habitat in southwestern Manitoba were purchased. These lands will be included in the Pembina Valley and Upper Assiniboine Wildlife Management Areas. Habitat enhancement included forage plot development and pond construction in the proposed Mars Hill Wildlife Management Area, watering hole construction in the St. Malo Wildlife Management Area, creation of forage plots on Hydro line lands in southeastern Manitoba between Marchand and Woodridge, forage plot seeding in the Narcisse Wildlife Management Area and maintenance of forage plots on several other W.M.A. in the Interlake area.

- The amount and extent of wildlife land planning in Manitoba was expanded significantly in 1988-1989. The primary objective of this initiative is to improve the efficiency of current staff and budget efforts.
- A quarter section of land containing an internationally recognized red-sided garter snake denning area was purchased to protect this unique and fragile site. The acquisition was funded by Wildlife Habitat Canada, Manitoba Habitat Heritage Corporation, the Manitoba Wildlife Federation and the Manitoba Naturalists Society.
- The second year of a three-year study of the distribution of black bears in the Riding Mountain area was very successful. Approximately 30 bears continued to be monitored in and around Riding Mountain National Park. Some extensive relocations, both in terms of numbers and distance, were recorded, which seemed to be caused by local abundance of food. This project is a co-operative venture involving Manitoba, Canada and the World Wildlife Fund.
- Wildlife completed year three of a five-year co-operative study with the Parks and Forestry Branches, Abitibi-Price Inc., and the University of Manitoba to devise timber-harvesting guidelines that will minimise the impact of forestry operations on the caribou herd east of Lake Winnipeg. This winter, approximately 28 radio-collared caribou were tracked to record their movement patterns, and field teams travelled in snowmobiles to gather data on the habitat being used extensively by caribou. Data from this study will be integrated with existing computer-based forest data to allow long-range planning that accounts for the needs of caribou.
- Research into productivity and nest fidelity of Canada geese continued in 1988 in the Hudson Bay area. Cold weather delayed nesting with peak hatch occurring only four days later than normal. Overall, production was better than in 1987 with nest density increasing from five to 13 nests per square kilometre. Peak numbers of geese decreased in the

Oak Hammock Marsh area due primarily to the early harvest of cereal grains during August 1988. The dry weather and early tilling of the fields resulted in a constant turnover of the fall population with lower-than-normal build-ups. Leg bands were placed on 3,300 birds on the breeding grounds. Of these, 875 birds also received neck collars. Estimates of survival and determination of migration patterns are contingent on the maintenance of a large number of banded birds in this population. Analysis of blood and tissue samples taken from geese in 1987 provided further evidence of lead poisoning at Oak Hammock Marsh. Lead-shot ingestion was the causative agent, and proposals were being developed for use of non-toxic shot in problem areas of southern Manitoba. Neck collar observations of Canada geese were continued in co-operation with other agencies in the Mississippi Flyway. The U.S. Fish & Wildlife Service currently acts as a repository for all collar observation data.

- Monitoring and assessment of sharp-tailed grouse habitat continued in 1988. This work has since been completed and recommendations are forthcoming from a graduate student. Project proposals are currently being drawn up for submission to funding agencies as part of an ongoing commitment to future habitat enhancement.
- Co-operative work with trap inventors and the Fur Institute of Canada continued during 1988-1989, primarily in the procurement of live fisher and field monitoring of power-snares used to capture coyotes. Further collation and analysis of current trap ownership and usage assists in determining direction for trapping systems design, refined trapping technology regulations and trapper education programs.
- During 1988-1989, a total of 1,100 moose, woodland caribou, black bear and elk jaws were collected and aged. Additional big game specimens were collected for cadmium analysis. Of the 1,008 furbearers' carcasses processed, 154 were lynx with the balance primarily of the Mustelidae family. Specimens for bioanalysis consist of two main types: scheduled collections, and incidentals collected by staff or donated by the public. Wildlife specimens (such as cleaned skulls) were distributed to museums, universities, community colleges, schools and other groups for collections. The major wildlife health problems identified over the past year were high tick infestations in moose and a high incidence of sarcoptic mange in coyotes in southwestern Manitoba and in wolves in the Swan River area.
- Funding from outside agencies continued to provide a major source of support for co-operative non-game wildlife programs. Supporters included the World

Wildlife Fund (Canada), Abitibi-Price Inc., the Ontario Ministry of Natural Resources, the Minnesota Department of Natural Resources, the U.S. Forest Service, the Canadian Wildlife Service, the U.S. Fish and Wildlife Service, New Jersey Wildlife, the Manitoba Habitat Heritage Corporation, employees of United Grain Growers Ltd., and the Manitoba Fisheries Branch. A total of \$140,200 was received from these sources for further studies of several threatened or endangered species. The Natural Resources Institute of the University of Manitoba, and the Manitoba Naturalists Society provided assistance in administering these funds.

- The American white pelican is no longer listed as threatened in Canada. Over 25% of the world's population breeds in Manitoba, and population recoveries likely relate to the DDT ban, increased food availability due to recent changes in fish species compositions and a better-educated public. This species continues to be vulnerable to disturbance of its breeding colonies, however, and current Manitoba studies centre on management concerns and the inter-specific relationships at colony locations.
- The endangered piping plover occurs in Manitoba in two main breeding populations (East Shoal Lake and Long Point) where the majority of the 100 breeding adults nest. Current provincial efforts centre on securing and protecting those major sites from disturbance. Surveys in 1988 indicated low productivity, with large percentages of adults either unsuccessful or not breeding.
- Nest surveys undertaken throughout the bald eagle's range in Manitoba from 1982-1987 indicated that about 1,300 pairs of eagles nest in the Province annually in varying nest densities. Eight young

eaglets were sent to New Jersey in 1988 as part of the effort to re-establish a breeding bald eagle population in the northeastern United States. Productivity surveys in southeastern Manitoba indicated poor nesting success in 1988. Technical Report No. 88-1, *The Bald Eagle in Manitoba*, was produced by the Department.

- A predicted crash in vole populations throughout southeastern Manitoba led to the migration of 20 of 30 radio-marked adult and young great grey owls. Those that failed to emigrate suffered high mortality through starvation and predation by great horned owls. Emigrating birds moved as far as 800 km north, repeating a pattern observed in 1984-1985.
- Two pairs of peregrine falcons were in residence in Winnipeg in 1988, though nesting did not occur. A male from the 1986 release and a female of unknown origin remained downtown until June 20th when the female disappeared; the male was present until October. An unbanded male and a young female from a 1987 Minneapolis nesting stayed together until early June when the male disappeared. In mid-August this female joined the downtown male; this new pair stayed together through September. Three more young were released in July.
- The alarming population decline of burrowing owls continued. From 76 known pairs in 1982, the provincial stock fell to only 28 pairs in 1988. During 1987 and 1988 seven family groups were removed from the Regina area and transplanted to pastures in the extreme southwest. Ten captive-bred young from the Owl Rehabilitation Research Foundation, Vineland Station, Ontario, were released in a pasture at the Oak Hammock Marsh Wildlife Management Area in 1988.

Section 15

Tables, Maps and Figures

The alphanumeric notation below is used to identify the tables, maps and figures on the following pages.

AF	Financial Summary
AS	Administrative Services
CM	Communications, Economics and Planning
CN	Conservation Districts Authority
EC	Engineering and Construction
FI	Fisheries
FO	Forestry
LA	Lands
PA	Parks
RS	Regional Services
SM	Surveys and Mapping
WA	Water Resources
WI	Wildlife

Table AF.1: Summary of Revenue, 1988-1989

Branch	Actual Revenue (\$'000)
Fisheries	2,063.6 ¹
Forestry	3,503.8
Lands	915.3
Parks	5,709.3
Water Resources	24,215.3
Wildlife	2,611.2 ²
Sundry	1,126.9
Municipalities' Shared-cost Receipts	84.4
Sale of Government Assets	199.9
Government of Canada (Shared-cost Receipts)	3,208.4
Total	43,638.2

¹Includes \$89.3 in commissions paid to vendors.

²Includes \$75.6 in commissions paid to vendors.

Table AF.2: Summary of Expenditures, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
				Over/(Under) Estimate
12-1	Administration and Finance	4,728.0	4,812.7	(84.7)
12-2	Regional Services	37,599.0	34,835.1	2,723.9
12-3	Engineering and Construction	6,849.8	7,018.5	(168.7)
12-4	Water Resources	9,482.0	9,689.1	(207.1)
12-5	Parks	14,419.0	14,597.0	(178.0)
12-6	Lands	1,904.7	1,946.6	(41.9)
12-7	Forestry	12,445.0	12,805.9	(360.0)
12-8	Fisheries	4,070.7	4,170.9	(100.2)
12-9	Wildlife	4,827.2	5,035.1	(207.9)
12-10	Surveys and Mapping	3,224.0	3,295.7	(51.7)
12-11	Resource Support Programs	789.4	1,069.1	(279.7)
12-12	Expenditures Related to Capital	10,694.1	10,451.4	242.7
	Total	111,012.9	109,727.1	1,285.8

Note: The 1988-1989 Estimates include the Canada-Manitoba enabling vote total of \$969.4 for the Canada-Manitoba Forest Renewal and Agri-Food Agreements.

Table AF.3: Expenditures under Appropriation 12-1, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-1	Administration and Finance			Over/(Under) Estimate
	A. Minister's Salary	20.6	20.6	0.0
	B. Executive Support			
	Salaries	222.0	223.3	(1.3)
	Other Expenditures	106.2	87.7	18.5
	C. Resource Allocation and Economics			
	Salaries	878.8	895.8	(17.0)
	Other Expenditures	182.7	193.4	(10.7)
	D. Financial Services			
	Salaries	826.5	859.6	(33.1)
	Other Expenditures	200.9	222.8	(21.9)
	E. Human Resource Management			
	Salaries	777.2	754.5	22.7
	Other Expenditures	173.8	172.3	1.5
	F. Computer Services			
	Salaries	257.7	256.2	1.5
	Other Expenditures	41.5	42.3	(0.8)
	G. Administrative Services			
	Salaries	687.9	672.9	15.0
	Other Expenditures	122.2	122.6	(0.4)
	H. Internal Audit			
	Salaries	133.5	151.6	(18.1)
	Expenditures	6.5	7.1	(0.6)
	J. Venture Manitoba Tours Ltd.	90.0	130.0	(40.0) ¹
	Total 12-1	4,728.0	4,812.7	(84.7)

¹Funds are budgeted to cover operating losses of the Corporation which were not as high as anticipated for 1988-1989.

Table AF.4: Expenditures under Appropriation 12-2, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-2	Regional Services			Over/(Under) Estimate
	A. Administrative Services			
	Salaries	793.6	922.8	(129.2)
	Other Expenditures	829.0	787.2	41.8
	Problem Wildlife Control	343.9	140.0	203.0 ¹
	B. Northwestern Region			
	Salaries	1,017.6	1,026.3	(8.7)
	Other Expenditures	361.5	360.0	1.5
	C. Northeastern Region			
	Salaries	1,133.9	1,207.3	(73.4)
	Other Expenditures	696.3	704.3	(8.0)
	D. Interlake Region			
	Salaries	1,402.6	1,349.4	53.2
	Other Expenditures	523.5	499.6	23.9
	E. Southwestern Region			
	Salaries	902.4	885.0	17.4
	Other Expenditures	291.4	291.1	0.3
	F. Western Region			
	Salaries	1,189.5	1,155.6	33.9
	Other Expenditures	421.1	419.0	2.1
	G. Southeastern Region			
	Salaries	978.5	984.9	(6.4)
	Other Expenditures	324.0	326.7	(2.7)
	H. Eastern Region			
	Salaries	934.6	939.1	(4.5)
	Other Expenditures	285.7	287.1	(1.4)
	J. Whiteshell Region			
	Salaries	720.9	712.7	8.2
	Other Expenditures	234.0	243.1	(9.1)
	K. N.D.A. — Provincial — Fire Program Development and Evaluation			
	Salaries	248.1	286.9	(38.8)
	Other Expenditures	244.9	362.2	(117.3) ²
	M. N.D.A. — Provincial — Fire Detection Program			
	Salaries	38.4	39.6	(1.2)
	Other Expenditures	196.5	288.1	(91.6) ³

Table AF.4: Expenditures under Appropriation 12-2, 1988-1989 (Continued)

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-2				Over/(Under) Estimate
	N. N.D.A. — Provincial — Fire Prevention Program			
	Salaries	18.8	23.0	(4.2)
	Other Expenditures	34.2	66.9	(32.7) ⁴
	P. N.D.A. — Provincial — Fire Pre-Suppression Program			
	Salaries	1,213.6	1,271.5	(57.9)
	Other Expenditures	2,237.6	2,266.1	(28.5)
	R. N.D.A. — Provincial — Fire Extra-Suppression Fund	17,769.2	14,800.0	2,969.2 ⁵
	S. N.D.A. — Provincial — Fire Tac Program	984.2	990.1	(5.9)
	T. N.D.A. — Provincial — Helitac Program	1,189.5	1,198.6	(9.1)
	Total 12-2	37,559.0	34,835.1	2,723.9

¹Supplementary funding of up to \$400.0 was authorised to fund an emergency big game feeding program. The 1988 summer drought reduced the overall quality and quantity of natural forage, while an early major snowfall in November and the January 1989 blizzard further restricted access to natural forage.

²A provision was made for \$111.1 of the program allotment to be expended for radio licensing fees which were expected to be introduced in 1988. The federal government did not charge these fees in 1988-1989.

³Due to the severity of the 1988 fire season, fewer aircraft were used solely for fire detection as detection was accomplished on flights originating for fire suppression or extra-suppression purposes.

⁴Expenditures for the Fire Prevention Program were reduced to fewer publications being purchased; reduction in travel costs; and a delay in billboard placement on provincial highways.

⁵Additional funding authority up to a maximum of \$3.5 million on an as-, if- and when-required basis, was provided by special warrant for forest-fire suppression purposes.

Table AF.5: Expenditures under Appropriation 12-3, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-3	Engineering and Construction			Over/(Under) Estimate
	A. Administration			
	Salaries	488.7	544.9	(56.2)
	Other Expenditures	219.7	218.1	1.6
	B. Technical Services			
	Salaries	1,419.9	1,405.8	14.1
	Other Expenditures	89.7	94.4	(4.7)
	Recoveries	(78.1)	(55.0)	(23.1) ¹
	C. Regional Engineering Services			
	Salaries	4,048.2	4,060.0	(11.8)
	Other Expenditures	833.7	884.8	(51.1)
	Recoveries	(172.0)	(134.5)	(37.5) ²
	Total 12-3	6,849.8	7,018.5	(168.7)

¹Recoveries are based on the number of requests for testing and drilling services received from other Departments. Due to the unusually long construction season, more requests were received than anticipated.

²Recoveries are dependent on the number of requests received from other Branches and Departments. Due to the long construction season, additional work which was scheduled for the 1989-1990 fiscal year on flood-protection projects was undertaken in 1988-1989.

Table AF.6: Expenditures under Appropriation 12-4, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-4	Water Resources			Over/(Under) Estimate
	A. Administration			
	Salaries	330.1	417.0	(86.9) ¹
	Other Expenditures	109.4	113.3	(3.9)
	B. Water Licensing and Approvals			
	Salaries	519.4	521.8	(2.4)
	Other Expenditures	27.0	24.3	2.7
	C. Water Management			
	Salaries	1,389.3	1,469.3	(80.0)
	Other Expenditures	239.9	282.2	(42.3)
	Waterway Maintenance	4,435.0	4,473.7	(38.7)
	D. Hydrotechnical Services			
	Salaries	1,074.3	1,067.8	6.5
	Other Expenditures	867.8	777.4	90.4
	E. Regional Management			
	Salaries	340.1	333.1	7.0
	Other Expenditures	37.8	36.8	1.0
	F. Canada-Manitoba Flood Damage Reduction Agreement			
	Salaries	84.2	83.8	0.4
	Other Expenditures	27.7	88.6	(60.9) ²
	Total 12-4	9,482.0	9,689.1	(207.1)

¹Salary costs were less than estimated due to the position vacancies and under-utilization of the allocation for severance pay for retirees.

²The Department was authorised to enter into an agreement with Canada to amend the termination dates and increase spending limits to the Canada-Manitoba Flood Damage Reduction Agreement. As of March 31st 1989 Canada had not yet been authorised to sign the amendment which resulted in limitations to provincial spending. Funding allocated in the **1988-1989 Estimates** was based on the assumption that the amended agreement would be signed during the fiscal year.

Table AF.7: Expenditures under Appropriation 12-5, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-5	Parks			Over/(Under) Estimate
	A. Administration			
	Salaries	398.9	464.9	(66.0)
	Other Expenditures	195.8	186.2	9.6
	B. Park Planning			
	Salaries	694.1	725.0	(30.9)
	Other Expenditures	163.3	157.0	6.3
	C. Program Management			
	Salaries	440.7	428.3	(12.4)
	Other Expenditures	57.3	56.7	0.6
	D. Park Operations and Maintenance			
	Salaries	9,127.8	9,201.3	(73.5)
	Other Expenditures	2,779.4	2,820.6	(41.2)
	E. Visitor Services			
	Salaries	360.4	391.4	(31.0)
	Other Expenditures	102.6	96.9	5.7
	F. Grant Assistance	98.7	68.7	30.0 ¹
	Total 12-5	14,419.0	14,597.0	(178.0)

¹Grants to the Friends of the Whiteshell Inc. and the Friends of Spruce Woods Inc. were made through an internal re-allocation of funding.

Table AF.8: Expenditures under Appropriation 12-6, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-6	Lands			Over/(Under) Estimate
	A. Administration			
	Salaries	88.3	108.8	(20.5)
	Other Expenditures	26.2	26.2	0.0
	B. Crown Lands Administration			
	Salaries	713.4	714.4	(1.0)
	Other Expenditures	100.0	96.8	3.2
	C. Regional Management			
	Salaries	307.9	316.7	(8.8)
	Other Expenditures	82.3	87.8	5.5
	D. Crown Lands Registry			
	Salaries	214.9	218.1	(3.2)
	Other Expenditures	189.0	188.6	0.4
	E. N.D.A. — Provincial — Wild Rice			
	Salaries	120.4	122.3	(1.9)
	Other Expenditures	62.3	66.9	(4.6)
	Total 12-6	1,904.7	1,946.6	(41.9)

Table AF.9: Expenditures under Appropriation 12-7, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-7	Forestry			Over/(Under) Estimate
	A. Administration			
	Salaries	463.0	494.2	(31.2)
	Other Expenditures	54.0	54.8	(0.8)
	Grant Assistance	34.4	34.4	0.0
	B. Forest Management			
	Salaries	677.3	712.9	(35.6)
	Other Expenditures	153.3	161.4	(8.1)
	C. Silviculture			
	Salaries	252.6	246.2	6.4
	Other Expenditures	816.4	807.2	9.2
	D. Forest Protection			
	Salaries	728.8	755.3	(26.5)
	Other Expenditures	1,240.1	1,350.2	(110.0)
	E. Regional Management			
	Salaries	643.8	658.2	(14.4)
	Other Expenditures	224.7	225.8	(1.1)
	F. N.D.A. — Provincial — Forest Renewal			
	Salaries	440.1	457.3	(17.2)
	Other Expenditures	1,503.5	1,557.3	(53.8)
	G. Forest Development Program			
	Salaries	287.5	332.7	(45.2)
	Other Expenditures	2,020.8	2,036.0	(15.2)
	H. Canada-Manitoba Forest Renewal Agreement			
	Salaries	33.4	33.7	(0.3)
	Other Expenditures	2,871.3	2,888.3	(17.0)
	Total 12-7	12,445.0	12,805.9	(360.9)

Table AF.10: Expenditures under Appropriation 12-8, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-8	Fisheries			Over/(Under) Estimate
	A. Administration			
	Salaries	214.6	232.4	(17.8)
	Other Expenditures	47.9	46.7	1.2
	B. Regional Management			
	Salaries	719.6	739.0	(19.4)
	Other Expenditures	244.1	250.2	(6.1)
	C. Fish Culture			
	Salaries	543.7	618.7	(75.0)
	Other Expenditures	158.0	161.2	(3.2)
	D. Fisheries Enhancement			
	Salaries	659.7	672.1	(12.4)
	Other Expenditures	224.8	228.9	(4.1)
	E. Commercial Fishing Management			
	Salaries	192.8	193.2	(0.4)
	Other Expenditures	31.0	30.7	0.3
	F. Sport Fishing Management			
	Salaries	186.2	175.8	10.4
	Other Expenditures	43.6	40.0	3.6
	G. Northern Fishermens' Freight Assistance	450.7	342.6	108.1 ¹
	H. Fishermens' Loan Program — Administration	354.0	439.4	(85.4) ²
	Total 12-8	4,070.7	4,170.9	(100.2)

¹Expenditures were higher than estimated in 1988-1989 due to an increase in production on South Indian Lake for the first time since its flooding; increased fishing effort on other northern lakes following record high payments during the last two years; and an increased number of southern lakes meeting the eligibility of five cents per pound base cost.

²The costs involved in the administration of the program were less than originally anticipated.

Table AF.11: Expenditures under Appropriation 12-9, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-9	Wildlife			Over/(Under) Estimate
	A. Administration			
	Salaries	240.5	250.1	(9.6)
	Other Expenditures	45.5	41.3	4.2
	B. Operational Management			
	Salaries	315.4	321.1	(5.7)
	Other Expenditures	169.8	131.0	38.8 ¹
	Grant Assistance	1.0	1.0	0.0
	C. Habitat Management			
	Salaries	415.4	429.9	(14.5)
	Other Expenditures	377.3	424.3	(47.0)
	D. Biological Services			
	Salaries	490.6	490.5	0.1
	Other Expenditures	184.0	167.3	16.7
	Grant Assistance	12.0	12.0	0.0
	E. Regional Management			
	Salaries	569.8	571.0	(1.2)
	Other Expenditures	177.1	178.2	(1.1)
	F. N.D.A. — Provincial — Wildlife Management			
	Salaries	128.7	128.3	0.4
	Other Expenditures	113.1	122.9	(9.8)
	G. Fur Management			
	Salaries	419.6	466.1	(46.5)
	Other Expenditures	301.9	357.4	(55.5)
	Grant Assistance	60.9	60.9	0.0
	H. Canada-Manitoba Waterfowl Damage Prevention Agreement	298.6	327.8	(29.2)
	J. Commercial Wildlife Management			
	Salaries	209.3	213.7	(4.4)
	Other Expenditures	132.7	135.5	(2.8)
	Grant Assistance	1.0	4.0	(3.0) ²
	Big Game Damage Compensation	163.0	200.8	(37.8)
	Total 12-9	4,827.2	5,035.1	(207.9)

¹The increase in expenditures was due to higher than anticipated costs for signage and printing, costs related to the Hecla Moose Survey and Outdoor Recreation Survey, and unanticipated costs for extension brochures for Oak Hammock Marsh and Narcisse Snake Dens.

²Fewer claims for assistance for the construction of bear fences were received than anticipated.

Table AF.12: Expenditures under Appropriation 12-10, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-10	Surveys and Mapping			Over/(Under) Estimate
	A. Administration			
	Salaries	287.7	289.5	(1.8)
	Other Expenditures	61.5	52.7	8.8
	B. Field Surveys			
	Salaries	672.3	687.4	(15.0)
	Other Expenditures	234.6	416.2	(181.6) ¹
	Recoveries	(18.7)	(170.0)	151.3 ¹
	C. Mapping			
	Salaries	699.4	733.2	(33.8)
	Other Expenditures	127.6	125.5	2.1
	Recoveries	(30.7)	(31.0)	0.3
	D. Map Distribution and Remote Sensing			
	Salaries	419.3	412.8	6.5
	Other Expenditures	358.2	369.2	(11.0)
	Recoveries	(166.7)	(185.0)	18.3
	E. Computer Services and Data Management			
	Salaries	459.1	458.8	0.3
	Other Expenditures	140.4	136.4	4.0
	Total 12-10	3,244.0	3,295.7	(51.7)

¹Provision was made in the **1988-1989 Estimates** for probable work to be performed and corresponding recoveries to be made from the Department of Northern Affairs for surveys of Indian Land Claims. The number of survey requests was lower than anticipated.

Table AF.13: Expenditures under Appropriation 12-11, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-11	Resource Support Programs			Over/(Under) Estimate
	A. Manitoba Water Commission	78.6	323.4	(244.8) ¹
	B. Garrison Diversion Opposition	16.3	25.0	(8.7)
	C. Conservation Districts Authority			
	Salaries	300.8	313.7	(12.9)
	Other Expenditures	123.7	137.0	(13.3)
	D. Habitat Enhancement Fund	250.0	250.0	0.0
	E. Natural Resource Institute Grant	20.0	20.0	0.0
	Total 12-11	789.4	1,069.1	(279.7)

¹The cost for the development of a Provincial Water Strategy was lower than originally estimated.

Table AF.14: Expenditures under Appropriation 12-12, 1988-1989

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-12	Expenditures Related to Capital			Over/(Under) Estimate
12-12A	Acquisition/Construction to Physical Assets — N.D.A. — Provincial			
12-12A-5A	Northern Park Development	240.2	242.5	(2.3)
12-12B	Acquisition/Construction of Physical Assets — Other Capital Projects			
12-12B-1	Administration and Finance			
	A. Computer Equipment	90.0	90.0	0.0
	Total 12-12B-1	90.0	90.0	0.0
12-12B-2	Regional Services			
	A. Equipment Purchases	60.0	60.6	(0.6)
	B. Regional Infrastructure	75.0	75.0	0.0
	Total 12-12B-2	135.0	135.6	(0.6)
12-12B-3	Engineering and Construction			
	A. Materials Inventory	88.5	150.0	(61.5) ¹
	B. Holding Account — Payments	1,331.1	1,600.0	(289.9) ²
	C. Holding Account — Recoveries	(1,331.1)	(1,600.0)	268.9 ²
	Total 12-12B-3	88.5	150.0	(61.5)
12-12B-4	Water Resources			
	A. Waterway Reconstruction	920.0	965.0	(45.0)
	B. Bridge Replacement Program	517.0	515.0	2.0
	C. Washow Bay (Agri-Food Agreement)	393.7	400.0	(6.3)
	D. Pasquia Polder III (Agri-Food Agreement)	307.3	305.0	2.3
	E. Canada-Manitoba Flood Protection Projects	2,122.6	1,400.0	722.6 ³
	F. Carman Diversion (Agri-Food Agreement)	15.6	200.0	(184.4) ⁴
	G. Gimli Flood Control	87.2	300.0	(212.8) ⁵
	H. Cooks Creek (Agri-Food Agreement)	556.2	900.0	(343.8) ⁶
	Total 12-12B-4	4,919.6	4,985.0	(65.4)

Table AF.14: Expenditures under Appropriation 12-12, 1988-1989 (Continued)

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-12B-5	Parks			Over/(Under) Estimate
	A. Park Infrastructure	1,460.2	1,478.9	(18.7)
	B. Vacation Home Lot Program	175.7	180.0	(4.3)
	C. Facility Enhancement	600.5	623.9	(23.4)
	D. Rural Resource Development	468.1	0.0	468.1 ⁷
	Total 12-12B-5	2,704.5	2,282.8	421.7
12-12B-6	Lands			
	A. Cottage Subdivision Upgrading	144.3	145.9	(1.6)
	B. Equipment Purchases	21.5	25.0	(3.5)
	Total 12-12B-6	165.8	170.9	(5.1)
12-12B-7	Forestry			
	A. Equipment Purchases	24.9	25.0	(0.1)
	Total 12-12B-7	24.9	25.0	(0.1)
12-12B-8	Fisheries			
	A. Equipment Purchases	27.2	30.0	(2.8)
	Total 12-12B-8	27.2	30.0	(2.8)
12-12B-9	Wildlife			
	A. Equipment Purchases	20.0	20.0	0.0
	B. Facility Enhancement	36.5	40.0	(3.5)
	C. Oak Hammock Marsh	116.7	117.0	(0.3)
	Total 12-12B-9	173.2	177.0	(3.8)
12-12B-10	Surveys and Mapping			
	A. Equipment Purchases	11.5	11.5	0.0
	Total 12-12B-10	11.5	11.5	0.0
12-12B-12	Conservation Districts Authority			
	A. Conservation Districts Development (Agri-Food Agreement)	82.6	120.0	(37.4) ^a
	Total 12-12B-12	82.6	120.0	(37.4)

Table AF.14: Expenditures under Appropriation 12-12, 1988-1989 (Continued)

Appropriation	Current and Capital Service	Actual (\$'000)	Estimate (\$'000)	Variance (\$'000)
12-12C	Capital Grants			Over/(Under) Estimate
12-12C-1	Grants to Conservation Districts	1,931.1	1,931.1	0.0
	Total 12-12C-1	1,931.1	1,931.1	0.0
12-12C-2	Peace Garden Grant	100.0	100.0	0.0
	Total 12-12C-2	100.0	100.0	0.0
	Total 12-12	10,694.1	10,451.4	242.7

¹This account is a materials inventory account which is debited with the cost of materials purchased for construction projects that are placed on inventory and credited with the value of materials charged out of inventory to construction projects undertaken through departmental capital accounts. In 1988-1989, the value of materials purchased for inventory exceeded the value of materials used from inventory by \$88.5.

²The funds expended are salaries paid to departmental employees who work on capital projects undertaken by the Engineering and Construction Branch. Time spent providing trade services to various Branches within the Department is recorded and subsequently recovered back to the recovery account by charging applicable salaries to specific projects.

³Funding in the amount of \$1.4 million was originally approved for flood protection projects during 1988-1989. However, over-expenditures resulted in the following projects.

- The Ste. Rose du Lac dyking project costs were higher than anticipated due to high contract bids; increased compensation costs associated with the acquisition of right-of-way; and unanticipated enquiry costs under **The Expropriation Act**.
- The Souris Water Treatment Plant project costs were higher than anticipated due to the need to install a section of sheet piling to the dyke to ensure the stability of the bank along the Souris River.
- The Emerson dyking project costs were higher than anticipated due to an emergency replacement of a section of earthen dyke adjacent to Emerson hospital by extending the existing sheet piling dyke.

⁴The 1988-1989 fiscal year is the first year for this project. The project could not be undertaken as originally anticipated due to delays in obtaining rights-of-way.

⁵Delays in the purchase of a right-of-way did not allow the project to proceed as scheduled in 1988-1989.

⁶The preliminary cost for work scheduled for the 1988-1989 fiscal year was estimated to be \$900.0. This figure was later revised down to \$700.0. In addition, when the contracts were let, the Province received lower contract prices than were anticipated.

⁷During the 1988-1989 fiscal year the Department was authorised to undertake natural resource development and enhancement initiatives in rural Manitoba to a limit of \$545.0. These were one-time activities initiated in the 1988-1989 fiscal year.

⁸During the 1988-1989 fiscal year, the Department anticipated the completion of three of the five Conservation District Management Plans. **The Turtle Mountain Conservation District Plan** was finished as expected. However, the final printing was not completed. In addition, delays were experienced by the consultants working on management plans for the Whitemud and Cooks Creek Conservation Districts.

Table AS.1: Employees of Manitoba Natural Resources¹

Branch	Term	Permanent
Administration and Finance		109
Conservation Districts Authority		8
Engineering and Construction		161
Fisheries	2	59
Forestry	15	72
Lands		37
Parks	3	55
Regional Services	9	269
Surveys and Mapping		71
Water Resources		92
Wildlife	4	60
Subtotal	33	993
Seasonal and Departmental Staff		1,886
Total as of March 31st 1989		2,912

Table CM.1: Publications, Signs and Displays

	1986-1987	1987-1988	1988-1989
Publications			
New	17	20	10
Reprinted	37	28	45
Displays			
New	01	02	05
Refurbished	—	02	01
Signs			
Multi-sign Projects	15	06	13
Other	10	34	20
Miscellaneous Print Materials	75	55	57

Table CM.2: Resource Information Provided

News Releases	76
Telephone Calls Received	18,125
Special Events	11
Film Bookings	814
Requests for Publications	2,500

**MAP CM.1:
PROVINCIAL
CROWN LAND PLANS, 1988.**

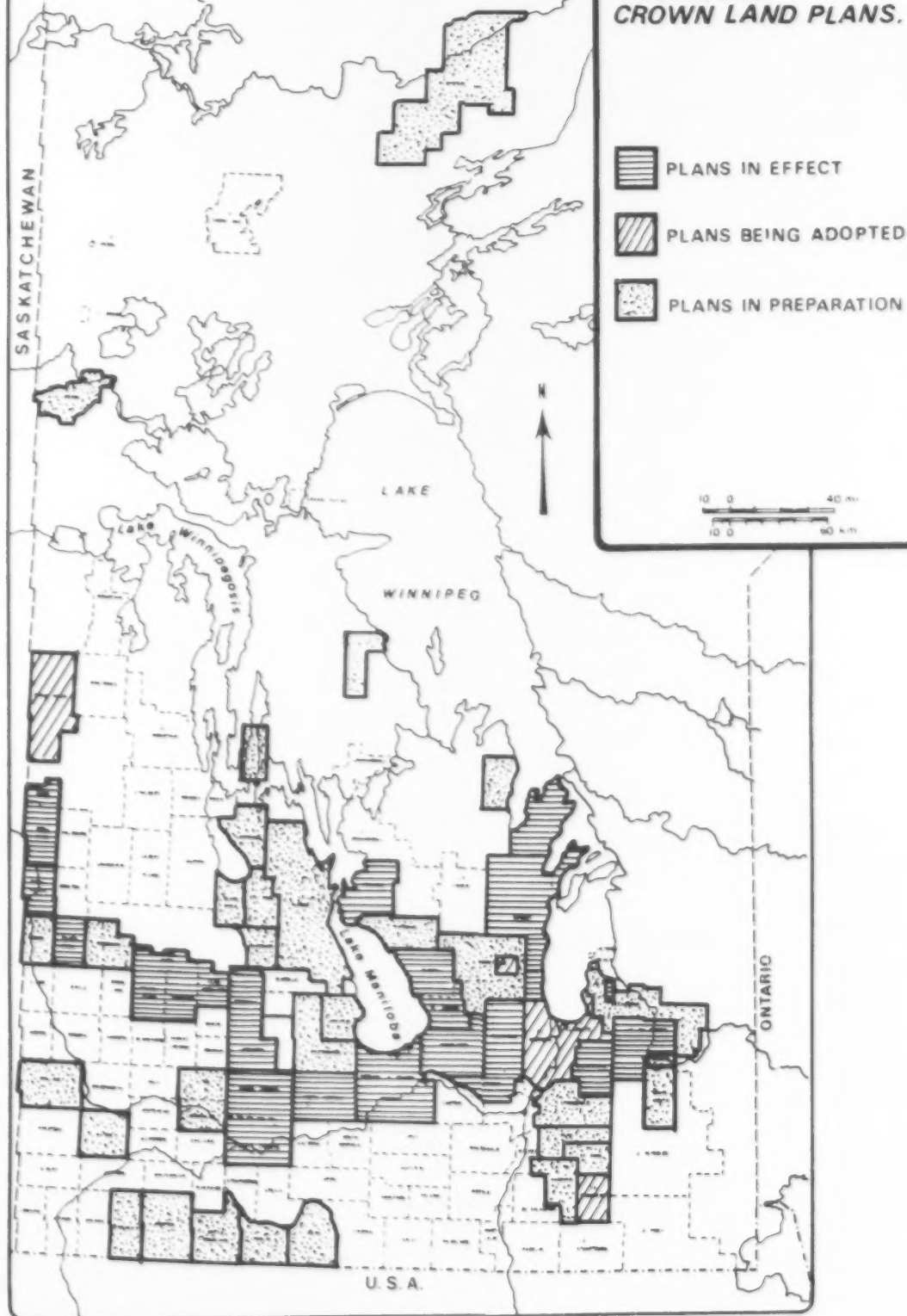


Table CM.3: Summary of Activities: Crown Land Classification Committee

	Area	Status	Comments
1	Lake of the Prairies, R.M. of Shellmouth, Roblin	Plan approved	
2	R.M. of Swan River	Draft plan under review	Field work completed
3	Selkirk and area	Draft plan under review	Planning near final stage
4	L.G.D. of Armstrong	Draft plan under review	Draft plan for Twp. 18 and 19, Rge. 1E only
5	Del-Win and Morton-Boissevain Planning District	Planning continued	Request for plan from Heritage Marsh Advisory Committee
6	R.M. of Sifton	Planning continued	Request for plan from Heritage Marsh Advisory Committee
7	L.G.D. of Consol	Planning continued	Field work nearing completion
8	L.G.D. of Alonsa	Planning continued	Request for plan from Conservation District. Field work completed for southern half
9	R.M. of Ochre River, Ste. Rose and McCreary	Planning continued	Request for plan from Turtle River Conservation District and Heritage Marsh Advisory Committee
10	Waterhen Community	Planning continued	
11	Saint Lakes area	Planning continued	
12	R.M. of Tache	Planning continued	Field work nearing completion
13	R.M. of Ste. Anne	Planning continued	Field work completed
14	R.M. of La Broquerie	Draft plan under review	Planning near final stage
15	Winnipeg River Planning District	Planning continued	Field work completed
16	Mars Hill	Project continued	Background study completed
17	Northern Interlake	Planning deferred	
18	Russell-Binscarth Planning District	Planning continued	Field work completed
19	R.M. of Lawrence	Planning continued	
20	R.M. of Eriksdale	Planning continued	R.M. has joined Western Interlake Planning District. Field work completed.
21	R.M. of Rosburn	Planning continued	
22	Virden-Wallace	Planning continued	Field work completed
23	Brandon and Area Planning District	Planning continued	Field work continued
24	R.M. of Westbourne and R.M. of Lakeview	Planning continued	Request for plan from Heritage Marsh Advisory Committee

**Table CM.3: Summary of Activities:
Crown Land Classification Committee (Continued)**

	Area	Status	Comments
25	Killarney and area, Roblin and Louise Planning Districts	Planning continued	
26	R.M. of Hanover	Planning continued	Field work completed
27	R.M. of Springfield	Planning continued	Field work completed
28	R.M. of Whitemouth	Planning continued	Field work completed
29	L.G.D. of Pinawa	Planning continued	Field work nearing completion
30	Thompson Planning	Planning continued	
31	Western Interlake Planning District	Plan review continued	5-year mandatory review
32	Neepawa and Area Planning District	Plan review initiated	5-year mandatory review
33	Cypress Planning District	Plan review continued	5-year mandatory review
34	Duck Mountain Provincial Forest additions	Planning initiated	Forestry Branch request
35	South Riding Mountain Planning District	Plan review initiated	5-year mandatory review
36	L.G.D. of Stuartburn	Planning initiated	
37	R.M. of Lawrence	Planning initiated	Special operation code review

Table CM.4: Natural Resources Planning, 1988-1989

	Planning Authority	Area	Status
1	Western Interlake Planning District (Council R.M. of Eriksdale)	R.M. of Eriksdale	Report completed
2	Gladstone Council	Town of Gladstone	Manuscript completed
3	St. Francois Xavier Council	R.M. of St. Francois Xavier	Report completed
4	Ste. Anne Council	R.M. of Ste. Anne	Report completed
5	Rosburn Planning District	R.M. of Rosburn, Village of Rosburn	Report being prepared
6	Ste. Rose Planning District	R.M. of Ste. Rose, Village of Ste. Rose du Lac	Report being prepared

Table CN.1: Conservation Districts' Expenditures

District	Provincial Grant	District's Share	External Funds	Total
Alsona	\$ 168,534	\$ 63,522	\$ 2,192	\$ 234,248
Cooks Creek	231,200	146,460	1,630	389,290
Turtle Mountain	225,300	103,875	967	330,142
Turtle River Watershed	472,850	145,386	50,766	669,002
Whitemud Watershed	\$828,410	285,577	30,258	1,144,245
Total	\$ 1,926,294	\$ 744,820	\$ 95,813	\$ 2,766,927

Note: Provincial grant figures are adjusted to reflect district receivables or payables at year end.
District funds include municipal grants and farmer contributions, etc.
External funding includes contributions under federal or provincial programs such as Agri-Food and Career Start or from private sources such as Ducks Unlimited Canada.

Table EC.1: Flood Damage Assessments and Repairs in \$000

	1988-1989
Flood Damage Claims	622.6
Provincial Waterway Repairs	118.4
Total	741.0

Table EC.2: Design Projects and Reports Completed

Agency	Projects	Reports
Conservation Districts	5	11
Department of Agriculture	-	1
Department of Northern Affairs	1	2
Municipalities	42	36
Fisheries Branch	1	4
Forestry Branch	2	-
Lands Branch	1	-
Parks Branch	9	5
Water Resources Branch	47	47
Wildlife Branch	2	-
Total	110	106

Table EC.3: Geotechnical Investigations and Reports

Agency	Number
Department of Environment	1
Department of Northern Affairs	2
Lands Branch	1
Parks Branch	19
Water Resources Branch	19
Total	42

Table EC.4: Service Calls

Agency	Emergency	Repair	Consultation
Forestry Branch	1	4	6
Parks Branch	14	28	9
Water Resources Branch	2	6	3
Total	17	38	18

Table EC.5: 1988-1989 Program Summary

Client	Expenditure (\$000)
Conservation Districts	1,235.9
Department of Agriculture	10.5
Department of Government Services	30.4
Department of Northern Affairs	113.7
Fisheries Branch	17.3
Forestry Branch	62.4
Parks Branch	535.8
Water Resources Branch	10,963.9
Wildlife Branch	28.2
Total	12,998.1

Table FI.1: Distribution to Sport Fishing Waters from Fish Hatcheries, 1988-1989

Species	Fry	Fingerlings	Yearlings	2-year old and Adults
Brook Trout	180,000	44,000	113,000	665
Brown Trout	—	199,000	67,730	—
Channel Catfish	—	—	—	177
Northern Pike	—	—	625	3,868
Rainbow Trout	—	242,118	22,595	18,293
Walleye	10,300,000	39,351	—	—

Table FI.2: Fishermen Employed in Manitoba's Commercial Fishery, 1987-1988

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holders	495	839	44	—	113	1,431
Hired Men/Helpers	142	169	3	—	11	318
Total	637	1,008	47	—	124	1,749
Winter						
Licence Holders	222	345	595	167	335	1,637
Hired Men/Helpers	95	66	430	190	137	894
Total	317	411	1,025	357	472	2,531
Annual						
Licence Holders	557	896	608	167	352	2,491
Hired Men/Helpers	190	180	433	190	148	1,103
Total	747	1,076	1,041	357	500	3,594

Table FI.3: Angling Licence Sales and Revenue, 1979-1980 to 1988-1989

	Resident Licences			Resident Conservation Licences			Total Resident Licences	
Year	Number	Fee	Revenue	Number	Fee	Revenue	Number	Revenue
1979-1980	155,790	\$ 3.30	\$475,621.75				155,790	\$475,621.75
1980-1981	159,584	\$ 3.30	\$487,384.20				159,584	\$487,384.20
1981-1982	159,233	\$ 3.30	\$486,394.90				159,233	\$486,394.90
1982-1983	164,384	\$ 5.00	\$741,087.50				164,384	\$741,087.50
1983-1984	157,724	\$ 5.00	\$710,986.50				157,724	\$710,986.50
1984-1985	154,489	\$ 5.00	\$696,541.50				154,489	\$696,541.50
1985-1986	154,602	\$ 6.00	\$851,476.00				154,602	\$851,476.00
1986-1987	158,412	\$ 6.00	\$872,568.00				158,412	\$872,568.00
1987-1988	158,118	\$ 6.00	\$870,850.00				158,118	\$870,850.00
1988-1989	91,485	\$10.00	\$869,832.50				61,671	\$ 5.00
	Non-Resident Regular Licences			Non-Resident Conservation Licences			Total Non-Resident Licences	
Year	Number	Fee	Revenue	Number	Fee	Revenue	Number	Revenue
1979-1980	31,029	\$11.00	\$334,312.75	9,590	\$ 5.50	\$50,534.25	40,619	\$384,847.00
1980-1981	32,353	\$11.00	\$346,565.25	8,658	\$ 5.50	\$45,612.50	41,011	\$394,177.75
1981-1982	32,037	\$11.00	\$344,723.50	8,439	\$ 5.50	\$44,369.50	40,476	\$389,093.00
1982-1983	28,561	\$20.00	\$557,353.50	3,777	\$12.00	\$43,502.50	32,338	\$600,856.00
1983-1984	29,852	\$20.00	\$562,435.00	3,592	\$12.00	\$41,346.50	33,444	\$623,781.50
1984-1985	30,268	\$20.00	\$561,545.50	3,443	\$12.00	\$39,645.00	33,711	\$630,190.50
1985-1986	22,239	\$30.00	\$653,289.00	10,325	\$15.00	\$149,824.00	32,564	\$806,113.00
1986-1987	21,809	\$30.00	\$643,571.00	12,536	\$15.00	\$181,906.50	34,345	\$825,477.50
1987-1988	21,861	\$30.00	\$645,063.00	13,834	\$15.00	\$200,748.50	35,695	\$845,811.50
1988-1989	18,013	\$30.00	\$511,515.00	14,428	\$15.00	\$209,355.50	32,441	\$740,870.50
	Total Regular Licences			Total Conservation Licences			Total Licences	
Year	Number		Revenue	Number		Revenue	Number	Revenue
1979-1980	186,819		\$809,934.50	9,590		\$50,534.25	196,409	\$860,468.75
1980-1981	191,937		\$835,949.45	8,658		\$45,612.50	200,595	\$881,561.95
1981-1982	191,270		\$831,118.40	8,439		\$44,369.50	199,709	\$875,487.90
1982-1983	192,945		\$1,298,441.00	3,777		\$43,502.50	196,722	\$1,341,943.50
1983-1984	187,576		\$1,293,421.50	3,592		\$41,346.50	191,168	\$1,334,768.00
1984-1985	184,757		\$1,287,087.00	3,443		\$39,645.00	188,200	\$1,326,732.00
1985-1986	176,841		\$1,507,765.00	10,325		\$149,824.00	187,166	\$1,657,589.00
1986-1987	180,221		\$1,516,139.00	12,536		\$181,906.50	192,757	\$1,698,045.50
1987-1988	179,979		\$1,515,913.00	13,834		\$200,784.50	193,813	\$1,716,661.50
1988-1989	109,498		\$1,401,347.50	76,099		\$487,205.00	185,597	\$1,888,552.50

Note: Revenue figures are net (less vendor's commission).
 Non-resident 3-day licences were discontinued in 1985-1986.
 Non-resident conservation licences were introduced in 1985-1986.
 Resident conservation licences were introduced in 1988-1989.

Table FI.4: Commercial Fishing Production (Round Weights kg) by Area and Total Value by Species, 1987-1988

Species	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis ¹		Other Lakes ¹		Total Production		Total \$ Values	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Annual
Bass			3,150	8,300					3,150	8,300	11,450		3,850	15,200
Carp			49,750	7,500					219,150	292,450	511,600		63,150	135,000
Catfish			3,000	50					3,000 ²	50	3,050		1,400	1,450
Goldeye	2,850	800	1,250	100					7,050	25,700	32,750		18,700	59,850
Muller	22,950	33,600	3,850	3,850					23,250	1,388,700	1,411,950		6,000	410,450
Percin	250	1,200	78,000	32,800					80,000	227,800	307,800		245,050	991,600
Pickereel	397,050	78,450	1,365,900	123,950					1,968,900	810,150	2,779,050		8,907,800	13,238,600
Pike	558,100	240,350	148,050	27,250					933,250	1,364,350	2,297,600		1,046,200	2,845,000
Sauger	1,000	800	1,320,600	1,009,450					1,327,900	1,401,150	2,729,050		3,126,700	6,992,100
Sturgeon									5,300	5,300	5,300		55,950	55,950
Trout	24,550	850							24,550	850	25,400		30,000	31,850
Tulzee	49,550	29,350	Trace ³	100					101,550	43,800	145,350		68,100	98,250
Whitefish	592,100	141,350	1,077,900	618,550					1,735,250	2,798,800	4,534,050		1,837,800	3,571,800
Whitefish Roe ⁴	(650)		Trace ⁵						(4,150)	Trace ⁶	(4,150)		1,733,950	1,733,950
Misc. ⁷									Trace ⁸	Trace ⁹	Trace ⁹		Trace ⁹	Trace ⁹
TOTAL	1,653,700	527,250	4,047,900	1,831,900	160,200	1,598,750		1,627,500	570,500	1,043,450	6,432,000	13,059,150	15,410,750	28,255,800

¹ Includes Cedar, Chitlik, Dauphin, Dog, Goldeye (51°29'37"23"), Goose (52°24'38"45"), Jackfish, Jackpine, Little Limestone #12, Mre, Pelican, Proulx, Red Deer, Sanc¹, Ray Reserve, Sibb, St. David, St. Martin, Swan, Waterhen, William.

² Small amount.

³ Figures for roe are not included in the totals.

⁴ Includes marlin.

⁵ Total \$ value includes both initial value and final payment.

⁶ No open water season due to closure.

⁷ Note: Commercial fishing statistics for the 1988-1989 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Table FI.5: Commercial Fishing Production (Round Weights kg), Total Value and Employment 1978-1979 to 1987-1988 (Licensed Fishermen Plus Hired Men)

Year	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes		Total	
	Weight/kg	\$ Value	Weight/kg	\$ Value	Weight/kg	\$ Value	Weight/kg	\$ Value	Weight/kg	\$ Value	Weight/kg	\$ Value
1978-1979	2,915,500	2,629,000	4,949,100	5,785,300	1,535,500	713,350	2,462,000	1,022,050	1,577,650	1,425,900	13,439,750	11,555,600
1979-1980	3,679,500	3,261,000	5,258,100	7,642,850	2,921,450	2,790,950	2,926,000	1,337,750	1,846,400	1,919,450	16,631,450	16,952,500
1980-1981	3,474,300	3,576,200	5,652,800	9,086,800	2,330,400	2,270,950	3,172,650	1,375,200	1,816,100	2,346,750	16,446,250	18,635,900
1981-1982	2,888,150	3,344,350	5,929,100	9,935,800	2,637,850	2,462,900	1,873,250	972,450	1,320,150	1,802,650	14,648,500	18,518,150
1982-1983	2,732,850	2,252,500	5,446,900	6,963,800	3,290,800	1,825,900	2,550,350	1,096,900	1,446,900	1,235,750	15,467,800	13,374,850
1983-1984	2,167,250	2,431,650	5,502,100	8,871,650	2,457,500	2,224,700	1,859,550	1,266,900	1,218,950	1,582,650	13,205,350	16,377,550
1984-1985	2,563,850	3,350,000	5,950,100	9,870,550	1,751,050	2,260,900	1,939,700	1,513,650	1,545,600	1,989,050	13,750,300	18,984,150
1985-1986	2,543,250	2,961,900	5,521,500	10,304,350	1,601,000	1,817,200	1,875,150	1,077,900	1,288,900	1,707,750	12,829,800	17,869,100
1986-1987	2,345,150	3,545,500	5,559,000	14,191,950	1,789,000	3,250,550	1,448,200	1,235,750	1,483,750	2,672,500	12,625,100	24,896,250
1987-1988	2,180,950	4,085,950	5,879,800	15,545,700	1,756,950	4,329,200	1,627,500	1,342,750	1,613,950	2,952,000	13,059,150	28,255,600

Note: Total value includes both initial value and final payment.

Table FO.1: Timber Cut by Departmental Region, 1988-1989

Region	Cubic Metres	Percentage
Eastern	287,094	15.46
Interlake	77,967	4.20
Northeastern	218,054	11.74
Northwestern	651,036	35.06
Southeastern	135,354	7.29
Southwestern	4,042	0.22
Western	372,536	20.07
Whiteshell	110,614	5.96
Total	1,856,697	100.00

Table FO.2: Record of Timber Scaled or Manufactured, 1988-1989

[illegible]

Table FO.3: Summary of Timber Cut on Crown Land, 1988-1989

Product	Species	Cubic Metres		Percentage
Lumber	Spruce, Pine, Fir, Tamarack, Cedar Poplar, Birch and other hardwoods	588,041 <u>76,503</u>	644,544	35.79
Pulpwood	Spruce, Pine, Fir Poplar	1,080,256 <u>8,704</u>	1,088,960	58.65
Railway Ties	Pine		263	0.02
Line Poles	Cedar, Pine, Tamarack, Spruce		5	0.00
Fence Posts	Cedar, Pine, Tamarack, Poplar, Spruce, Oak		9,511	0.51
Round Timber	Spruce, Pine, Tamarack		7,678	0.41
Mining Timber	Pine, Spruce		125	0.01
Fuelwood	Birch, Poplar, Pine, Spruce and other		85,611	4.61
Total 1988-1989			1,856,697	100.00
Total 1987-1988			1,854,337	

Table FO.4: Annual Forest Production by Forest Product (in Cubic Metres), 1979-1980 to 1988-1989

Year	Pulpwood		Lumber		Fuelwood		Other		Total	
	Volume (m³)	%	Volume (m³)	%	Volume (m³)	%	Volume (m³)	%	Volume (m³)	%
1979-1980	1,124,615	58.0	647,470	33.4	103,716	5.3	64,281	3.3	1,940,082	100
1980-1981	1,458,039	62.9	681,876	29.4	95,893	4.1	84,223	3.6	2,319,991	100
1981-1982	1,100,921	61.8	535,034	30.0	88,369	5.0	57,754	3.2	1,782,078	100
1982-1983	787,879	53.3	518,062	35.1	111,555	7.5	60,596	4.1	1,478,092	100
1983-1984	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100
1984-1985	1,201,970	71.9	330,228	19.7	103,593	6.2	37,240	2.2	1,673,031	100
1985-1986	1,065,361	63.1	474,826	28.1	110,561	6.5	38,149	2.3	1,688,897	100
1986-1987	927,085	55.5	598,168	35.8	98,039	5.9	45,840	2.8	1,669,132	100
1987-1988	1,007,882	54.4	733,269	39.5	84,573	4.6	28,613	1.5	1,854,337	100
1988-1989	1,088,960	58.7	664,544	35.8	85,611	4.6	17,582	0.9	1,856,697	100

Table FO.5: Revenue from the Sale of Crown Timber

Year	Total Harvest (in cubic metres)	Revenue ¹
1979-1980	1,940,082	\$1,624,290.86
1980-1981	2,320,031	1,908,776.72
1981-1982	1,782,078	1,792,589.82
1982-1983	1,478,092	1,383,734.70
1983-1984	1,500,332	1,964,510.80
1984-1985	1,673,031	2,302,339.73
1985-1986	1,688,897	2,473,081.25
1986-1987	1,669,132	2,682,289.37
1987-1988	1,854,337	2,961,462.33
1988-1989	1,856,697	2,518,014.99

¹Dues in respect of Crown timber harvested.

**Table FO.6: Permits, Licences and Quotas on Crown Lands
(Including Provincial Forests), 1987-1988 and 1988-1989**

	1987-1988	1988-1989
Timber Dealers and Sawmill Licences		
Timber Dealers	65	62
Sawmill Licences	113	117
Permits and Licences Covering Timber Cutting Rights		
Permits	5,510	4,771
Timber Sales Agreements		
Awarded	9	31
Previously Awarded	203	194
Timber Seizures Recorded	4	8
Timber Allocations in Force on March 31st		
Timber Sales	201	197
Timber Permits	36	36
Forestry Revenue (Crown Charges)	\$3,282,283.76	\$3,494,700.19

Table FO.7: Permits and Leases in Provincial Forests, 1987-1988 and 1988-1989

	1987-1988	1988-1989
General Permits and Leases		
Sawmill Site	—	1
Trappers' Cabins	38	35
Hunting and Fishing Cabins	4	2
Other Lodges, Cabins, Residences	6	7
Grazing Fences	—	—
Maintain Roads and/or Spurlines	1	—
Youth Groups (Camping and Sports)	7	3
Land Use for Municipal Purposes	8	8
Land Use for Government Purposes	4	9
Miscellaneous	20	31
Total	88	96
Hay Permits		
Number of Permits	13	17
Tonnes of Hay	206.58	244.45
Grazing Permits		
Number of Permits	3	3
Head of Livestock	58	60

Table FO.8: Summary of Funding of Forestry Initiatives Program (\$000)

	100% Provincial		50/50%		Federal	
	Allotted	Expended	Allotted	Expended	Allotted	Expended
Canada-Manitoba Forest Renewal Agreement						
Program A: Forest Renewal	\$1,184.9	\$1,184.0	—	—	\$ 887.4	\$ 809.3
Program B: Intensive Forest Management	485.2	454.6	—	—	496.1	497.5
Program C: Applied Research, Tech Transfer, Opport. Ident & Nursery Development	560.4	560.0	\$702.0	\$692.5	687.3	687.2
Program D: Public Information, Evaluation and Administration	16.5	13.6	—	—	161.0	161.1
Agreement Totals, 1988-1989	\$2,922.0	\$2,904.7	\$702.0	\$692.5	\$2,231.8	\$2,155.1
Forest Development Project						
Program A: Forest Renewal	\$ 230.1	\$ 552.6				
Program B: Intensive Forest Management	1,500.0	2,164.8				
Program C: Nursery Development	508.6	714.3				
Program D: Public Information	130.0	144.6				
Forest Development Totals, 1988-1989	\$2,368.7	\$2,308.2				
Grand Totals	\$5,290.7	\$5,212.9	\$702.0	\$692.5	\$2,231.8	\$2,155.1

Table FO.9: Budget for 1988-1989 Fiscal Year

Current Budget	Staff Years	Budgeted	Expended
Administration	14.0	583.4	551.4
Forest Inventory	21.0	874.3	830.6
Silviculture	7.0	1,053.4	1,069.0
Forest Protection	25.42	2,105.5	1,968.9
Regional Management	21.0	884.0	868.5
Forest Renewal: Northern Development Agreement	16.26	2,014.6	1,943.6
Forest Development Program	11.0	2,368.7	2,308.3
Subtotal Current Budget	109.31	9,883.9	9,540.2
Ongoing Capital: Equipment	—	25.0	24.9
Canada-Manitoba Forest Renewal Agreement	1.0	2,922.0	2,904.7
Total Forestry Budget, 1988-1989	110.31	12,830.9	12,469.9

Table FO.10: Forest Renewal Activities, 1988-1989

1988-1989 Forest Renewal Activities	Province of Manitoba Regional Program	Abitibi-Price Inc.	Manfor	Total
Renewal				
Trees Planted (000's)	8,779.7	2,835.4	4,053.6	15,668.7
Area Planted	3,432.0 ha	1,350.0 ha	2,088.0 ha	6,870.0 ha
Area Scarified for Natural Regeneration	622.0 ha	Nil	1,154.0 ha	1776.0 ha
Area Site Prepared	2,462.0 ha	1,648.0 ha	1,733.0 ha	5,843.0 ha
Total Area Regenerated	4,054.0 ha	1,350.0 ha	3,242.0 ha	8,646.0 ha
Stand Tending				
Area Mechanically Thinned or Released or Spaced	Nil	246.0 ha	300.0 ha	546.0 ha
Area Herbicided	Nil	544.0 ha	50.0 ha	594.0 ha
Area Treated for Insect or Disease Infestation (Including Weevil Eradication but Excluding Jack Pine Budworm)	1,843.0 ha	Nil	Nil	1,843.0 ha
Forest Surveys				
Natural Regeneration	6,400.0 ha	1,750.0 ha	4,574.0 ha	12,724.0 ha
Plantations	2,700.0 ha	325.0 ha	1,308.0 ha	4,333.0 ha

Table FO.11: Forest Inventory Projects, 1988-1989

Activity	Area in sq. km
Aerial Photography	9,305
Photo Typing	18,290
Forest Cover Mapping	16,480
Air Photo Interpretation	14,180
Area Compilation (FORIST Library)	70,770
Forest Inventory Reports	8,970
Township Air Photo Mosaics	22,080

Table FO.12: Forest Cover Map Sheets

Year	In Progress	Ready for Library	In Library	Total Map Sheets
April 1st 1988 to March 31st 1989	107	18	651	776
April 1st 1987 to March 31st 1988	65	29	303	397
April 1st 1986 to March 31st 1987	6	9	62	77
August 30th 1985 to March 31st 1986	14	—	20	34
Total April 1st 1989				1,284

Table FO.13: Cone Collection and Seed Extraction, 1988-1989

Species	Zone	Cones (hl)	Seed (kg)	Seedlot #	Region
Red Pine	1.0	21.6	18.10	438	Southeast
Total		21.6	18.10		
Jack Pine	4.1	14.6	8.04	439	Eastern
	4.1	57.9	32.36	440	Southeast
Total		72.5	40.40		
Black Spruce	11.1	7.25	N/A	N/A	Southeast
	11.2	23.40	12.62	435	Abitibi-Price
	11.2	0.85	0.48	436	Abitibi-Price
	11.2	6.0	3.12	437	Abitibi-Price
	11.3	32.63	9.88	441	Interlake
	11.3	3.7	N/A	N/A	Interlake
	11.5	13.35	7.84	442	Northern
	11.5	2.91	N/A	N/A	Northern
	11.5	12.5	N/A	N/A	Manfor (Area #1)
	11.6	68.2	N/A	N/A	Eastern
	11.7	36.0	N/A	N/A	Manfor (Area #2)
	11.8	43.0	22.04	N/A	Northern
	11.8	4.5	N/A	N/A	Manfor (Area #3)
White Spruce	13.2	23.6	23.60	431	Abitibi-Price
	13.5	36.55	71.82	432	Manfor
	13.5	2.4	2.72	434	Northern
	13.8	18.0	25.22	433	Northern
Total		80.55	123.36		

Grand Totals: Cones Collected: 428.94 hl
Seed Extracted: 237.84 kg as of March 31st 1989

Table LA.1: Crown Land Sales and Permanent Dispositions

Orders-in-Council Approved	74
Parcels of Land Approved for Sale	256
Agricultural Transfers	17
Residential Transfers	00
Recreational Transfers	41
Commercial/Other Transfers	13
Long-term Agreements Paid Out and Transferred	11
Conveyance of Minerals	26

Table LA.2: Revenue from Land Administration Sales

Agricultural	\$127,419
Residential	108,714
Recreational	174,764
Commercial/Other	20,450
Total	\$431,347

Table LA.3: Leases and Permits, Temporary Dispositions

Current Permits and Leases	3,393
Assignments	253
New Applications Processed (including Easements)	359
Cancellations and Surrenders	252
Revenue from Temporary Dispositions	\$427,566

Table LA.4: Wild Rice Harvest

	1986	1987	1988
Total Harvest	855,000 lb.	1,650,000 lb.	1,688,000 lb.
Lakeside Price	\$0.90 per lb.	\$0.57 per lb.	\$0.62 per lb.
Licences	424	437	419
Harvest Permits	26	45	45
Buyers' Permits	5	5	7

Table LA.5: Indian Land Claims

Band	Acreage	Privy Council Order	Order-in-Council	Surveyed	Under Negotiation
Barren Lands	5.8		X		
Chemawawin	11,057.18		X		
Cross Lake	31,225				X
Dakota Tipi	57			X	
Gods River	344.18	X			
Indian Birch	2,307				X
Mathias Colomb	5,570		X		
Nelson House	3,617				X
Nelson House	6			X	
Norway House	12,413				X
Shamattawa	8,100				X
Shoal River	8,450				X
Split Lake	4,665				X
The Pas	126.18			X	
War Lake	204.86		X		
Wasagamack	6				X
Waterhen	263.57		X		
York Factory	2,390		X		
York Factory	12,683				X

Table RS.1: Livestock Compensation Program

Year Paid	Claims	Claims Paid	Total Paid	Average
1979-1980	5	1	\$ 609.50	\$ 609.50
1980-1981	8	3	2,289.50	763.17
1981-1982	21	11	6,300.00	572.73
1982-1983	23	12	13,500.00	1,125.00
1983-1984	26	10	10,518.00	1,051.80
1984-1985	8	5	2,499.04	499.80
1985-1986	6	1	1,820.00	1,820.00
1986-1987	10	8	5,879.47	723.93
1987-1988	15	10	8,720.00	872.00
1988-1989	7	4	4,625.00	1,156.25

Table RS.2: Hunter and Firearm Safety Program

Calendar Year	Students	Total to Date	Instructors Certified
1980	3,905	78,147	51
1981	4,614	83,788	63
1982	4,460	87,248	45
1983	3,315	90,563	58
1984	4,150	94,713	47
1985	2,977	97,690	38
1986	2,922	100,612	28
1987	2,953	103,565	30
1988	2,953	106,518	26

Table RS.3: Firearm Accidents

Calendar Year	Accidents			Fatalities		
	Hunting	Non-Hunting	Total	Hunting	Non-Hunting	Total
1980	9	13	22	1	2	3
1981	24	10	34	2	2	4
1982	13	7	20	0	1	1
1983	8	12	20	2	3	5
1984	13	3	16	2	0	2
1985	12	14	26	1	0	1
1986	15	17	32	4	0	4
1987	16	9	25	2	1	3
1988	14	12	26	2	2	4

Note: Treaty Indian firearm accidents were not included in accident totals prior to 1985.

Table RS.4: Problem Wildlife Occurrences, 1988-1989

Species	Region								Species Total	% of Total
	NE	NW	SE	SW	E	Int	W	Wh		
Beaver 100% ¹	7	12	67	71	17	48	13	32	267	10
Beaver 50-50 ²	0	0	0	108	0	0	10	0	118	5
Black Bear	56	47	28	19	129	49	21	102	451	17
Polar Bear	146	0	0	0	0	0	0	0	146	6
Elk	1	4	56	248	23	32	93	1	458	17
Moose										
Deer										
Wolf	12	8	13	10	3	15	13	6	80	3
Migratory Birds	3	34	18	48	2	178	86	2	371	14
Other	13	18	322	100	74	122	50	32	731	28
Total	238	123	504	604	248	444	286	175	2,622	100%

¹Beaver 100% refers to areas where costs are supported 100% by the Province.

²Beaver 50-50 refers to areas around Riding Mountain National Park where costs are shared 50% by the Federal Government.

Table RS.5: T.I.P. Calls, 1988-1989

Region	Number of Calls				Number of Charges			
	Fish	Wildlife	Other	Total	Fish	Wildlife	Other	Total
Southeastern	11	169	2	182	—	29	1	30
Southwestern	8	126	1	135	1	8	3	12
Interlake	16	98	—	114	2	14	—	16
Western	6	46	—	52	—	3	—	3
Eastern	24	58	—	82	12	4	—	16
Whiteshell	6	27	1	34	1	1	1	3
Northwest	2	11	—	13	—	—	—	—
Northeast	1	2	—	3	—	—	—	—
Total	74	537	4	615	16	59	5	80

Table RS.6: T.I.P. Calls by Year, 1985-1986 to 1988-1989

	1985-1986	1986-1987	1987-1988	1988-1989	Total
Calls Received	417	530	706	615	2,267
Information Calls	217	123	356	98	984
Offences Dealt With	200	407	313	363	1,283
Prosecutions	66	138	124	80	408
Warnings	22	29	34	9	94

Figure RS.1
T.I.P. Calls by Month

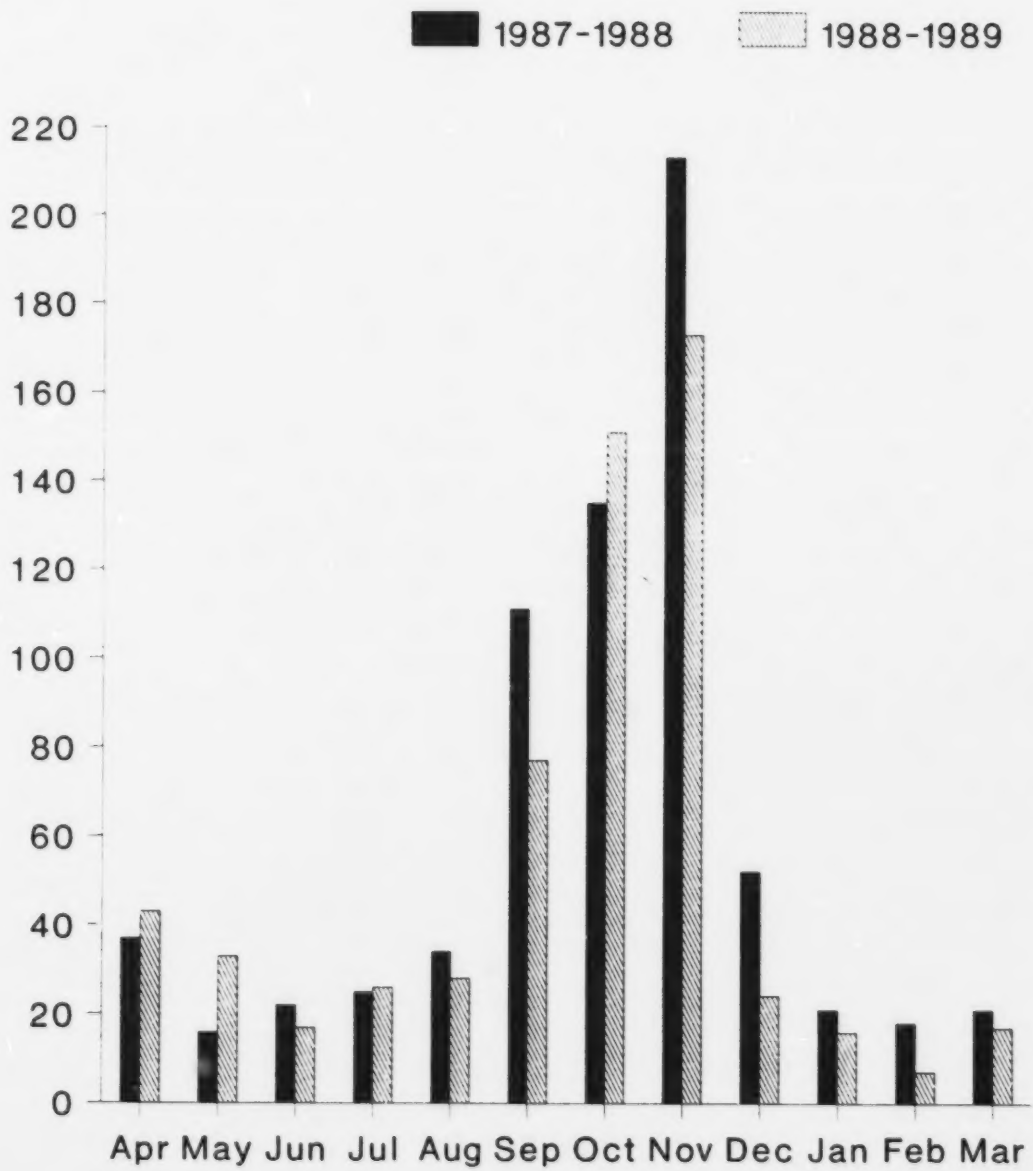


Figure RS.2
T.I.P. Prosecutions by Month

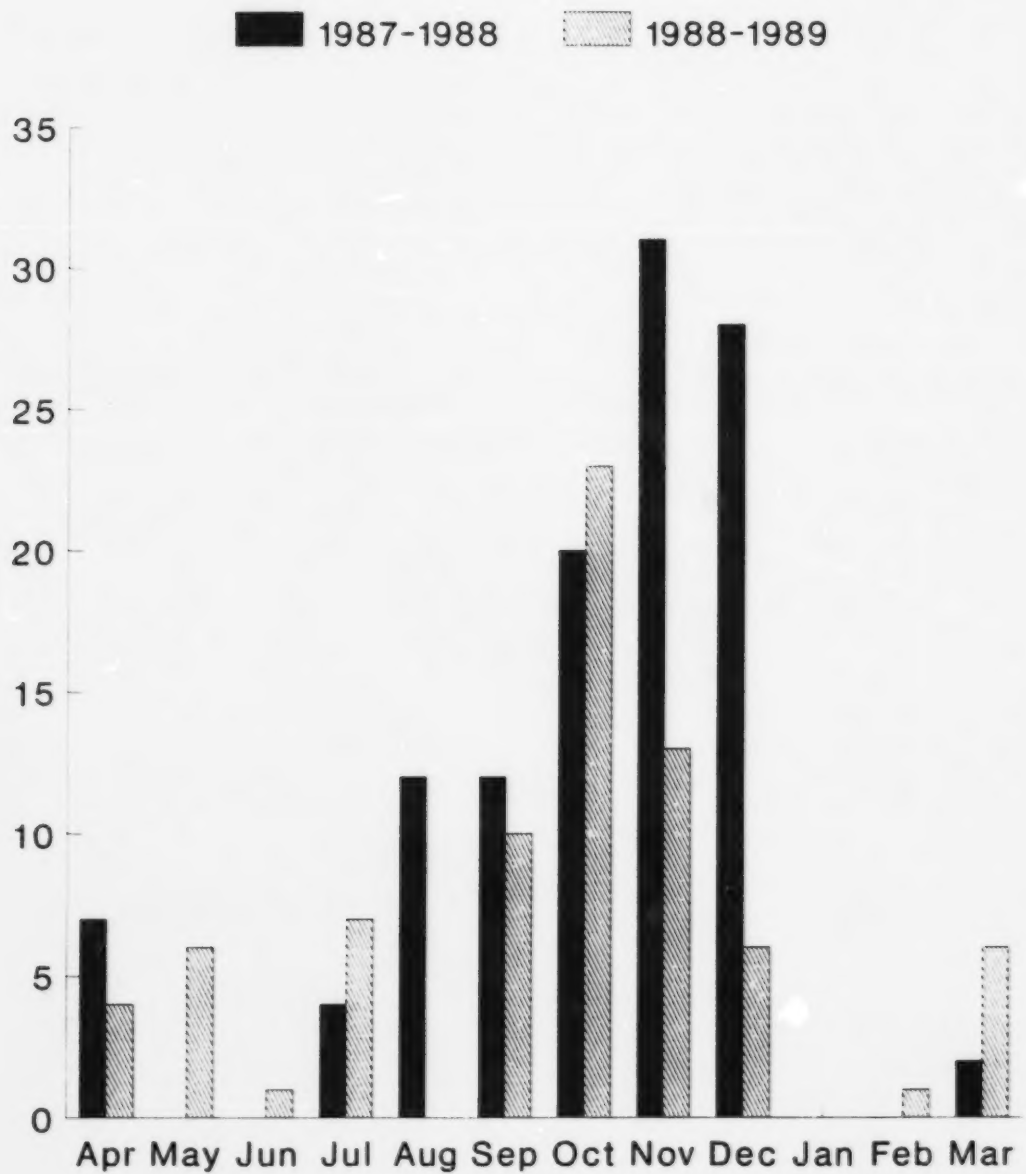


Figure RS.3
Number of Fires, 1979-1988

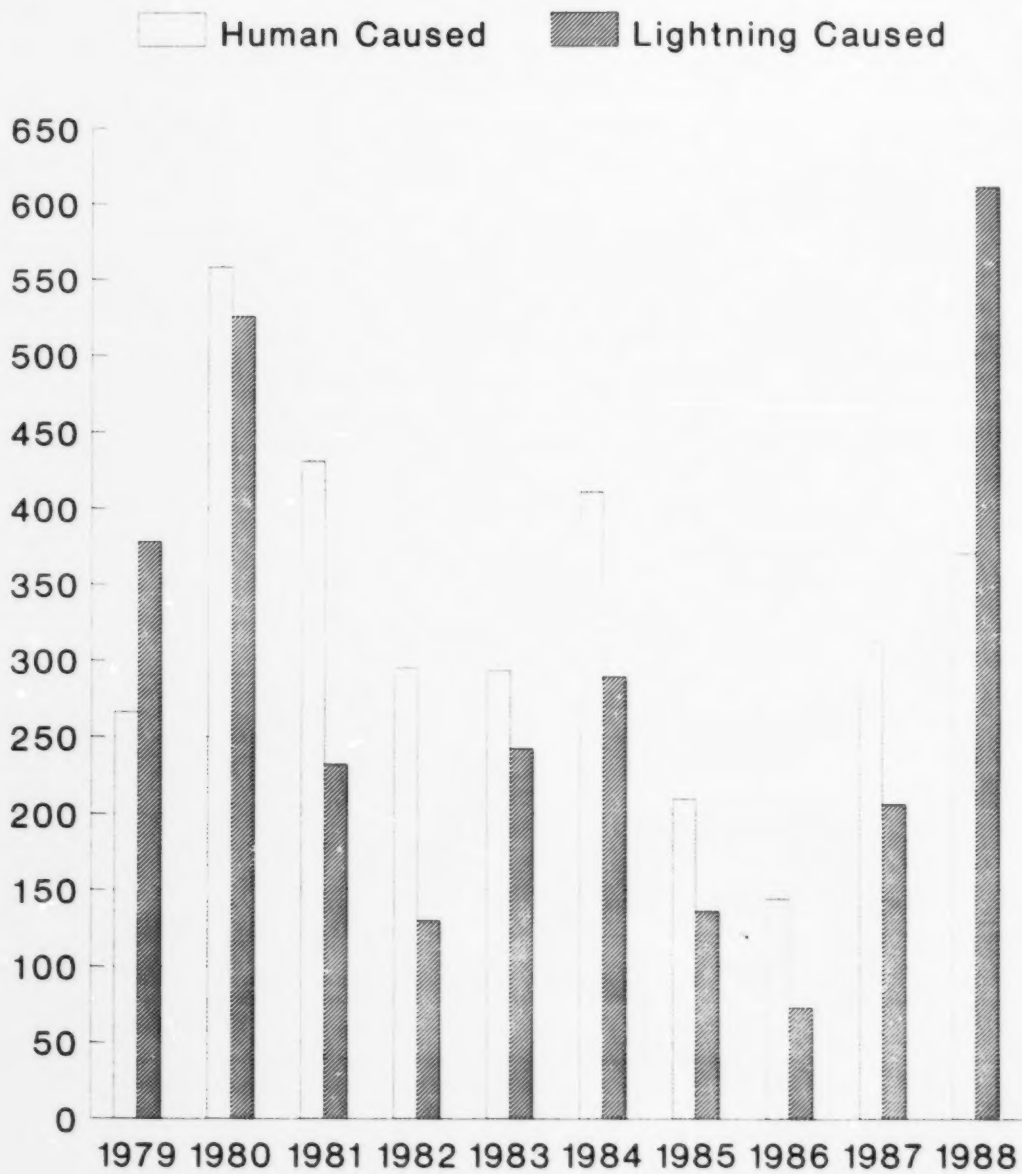


Figure RS.4

Area Burned by Forest Fires, 1979-1988

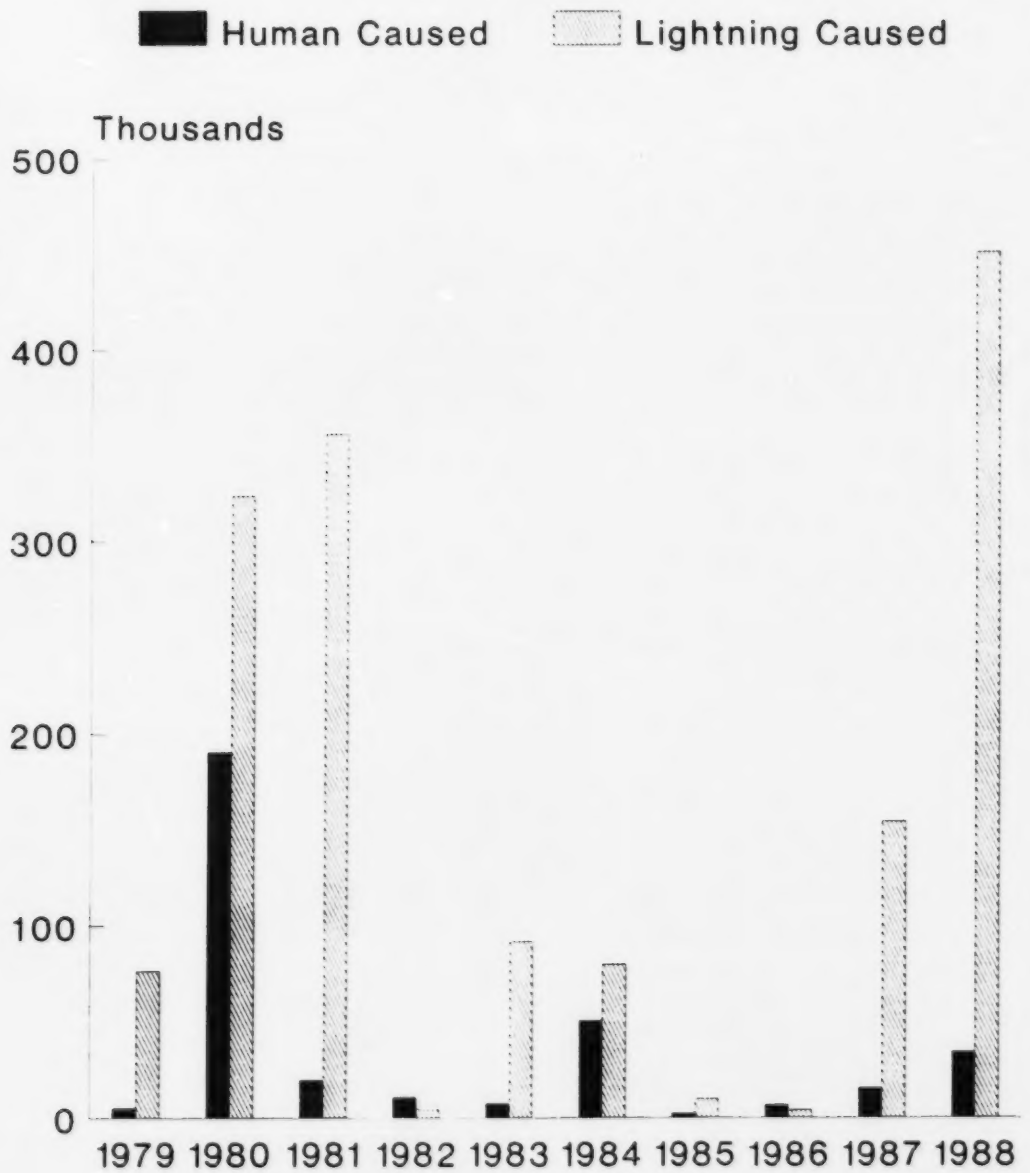


Table RS.7: 1988 Fires

Cause	Number of Fires		Percentage		Area Burned (ha)	
	1988	5-yr. av.	1988	5-yr. av.	1988	5-yr. av.
Recreation	84	74	8.5	13.5	1,345.3	1,360.2
Settlement	93	96	9.4	17.5	2,938.1	4,254.5
Woods Operation	7	5	0.7	0.8	429.7	298.3
Other Industrial	17	8	1.7	1.4	1,521.6	434.5
Railways	59	27	6.0	4.8	9,000.1	1,932.0
Public Projects	4	10	0.4	1.7	2.8	82.3
Incendiary	49	25	4.9	4.5	9,051.6	1,438.8
Agriculture	50	39	5.0	7.0	8,070.2	9,685.6
Miscellaneous	19	7	1.9	1.2	1,854.3	380.8
Total Human Caused	382	286	38.9	52.4	34,213.7	21,647.8
Total Lightning Caused	600	260	61.1	47.6	451,439.6	139,830.1
Total	982	546	100.0	100.0	485,653.3	161,477.1

Table RS.8: Most Common Violations under *The Provincial Park Lands Act*, 1988-1989

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences	% Inc/Dec
Caused Disturbance	121	105	93	224	345	+ 214
Parked Illegally	60	56	93	46	106	+ 130
Unauthorised Fire	30	30	100	24	54	+ 86
Operated Vehicle in Non-designated Area	13	13	100	5	18	- 42
Pets on the Loose	10	9	90	12	22	+ 16
Noisy/Dangerous Vehicle Operation	3	2	66	3	6	- 67
Damage/Deface Property	5	4	80	11	16	+ 129
Other	102	88	86	56	158	- 16
Total	344 ¹	307	92	381	725 ¹	+ 46

Total Fines: \$23,611.00 (+ 59%). Total Costs Assessed: \$7,260.00. Average Fines: \$76.71 (+ 7%).

¹Includes 40 cases carried over from 1987-1988.

Table RS.9: Wildlife, Fisheries, Parks, and Migratory Birds Prosecutions, 1979-1980 to 1988-1989

Fiscal Year	Wildlife	Fisheries	Parks	Migratory Birds
1979-1980	782 ¹	370 ²		
1980-1981	438 ¹	446 ²		
1981-1982	897	597 ²	179	69
1982-1983	557	475 ³	108	22
1983-1984	604	555 ³	157	30
1984-1985	561	475 ³	121	41
1985-1986	686	452 ³	226	83
1986-1987	557	494 ³	270	58
1987-1988	594	524 ³	234	41
1988-1989	491	746 ³	304	43

¹Includes violations under **The Wildlife Act** and **The Migratory Birds Convention Act**.

²Sportfish violations only are shown for 1981-1982 and earlier.

³Includes violations under **The Fisheries Act** (Canada) and **The Fisheries Act** (Manitoba).

Table RS.10: Most Common Violations under *The Fisheries Act* (Canada), *The Freshwater Fish Marketing Act* and *The Fisheries Act* (Manitoba), 1988-1989

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences	% Inc/Dec
Sport Fishing						
Sport Fishing without a Licence	131	112	86	18	149	+ 37%
Angle with Too Many Lines	63	61	95	14	77	+ 71%
Exceed Limit	88	85	95	17	105	+ 42%
Fail to Carry/Produce Licence	75	65	87	32	107	+ 143%
Transport Unidentifiable Fish	9	5	56	5	14	- 33%
Fail to use Barbless Hooks	127	123	98	71	198 ¹	
Fish within 25 yards of Fishway	35	35	100	6	41	- 21%
Commercial Fishing						
Small Mesh Nets	22	21	95	10	32	+ 100%
Commercial Fishing without a Licence	1	1	100	0	1	- 92%
Fail to Mark Equipment	12	11	95	15	27	+ 69%
Decayed Fish	6	6	100	1	7	+ 40%
General/Domestic Fishing						
Fish/Possess Fish Contrary to Act or Regulations	9	9	100	1	10	- 76%
Fish During Closed Season	38	38	100	6	44	+ 7%
Fish/Possess Fish Without Lawful Reason	21	16	76	1	22	+ 2100%
Other	141	124	88	37	178	- 27%
Total	778	711	97	234	1,012²	+ 41%

Total Fines: \$54,618.00 (+ 56%). Total Costs: \$2,721.70 (+ 30%). Average Fines: \$76.82 (+ 35%).

¹No comparison with 1987-1988 available.

²Includes 32 cases carried over from 1987-1988.

Table RS.11: Most Common Violations under *The Wildlife Act*, 1988-1989

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences	% Inc/Dec
Loaded Firearm	129	123	94	12	141	- 1%
Nightlighting	143	84	59	5	148	+ 21%
Hunting on Private Land Without Permission	68	54	79	13	81	- 6%
Possess Illegally Taken Animal	37	17	46	0	37	- 24%
Hunting Without Licence	35	28	80	19	54	+ 38%
Hunting Out of Season	20	12	60	2	22	- 41%
Other	224	175	73	193	417	- 14%
Total	656	493	75	244	900 ¹	+ 7%

Total Fines: \$96,870.94 (- 10%). Total Costs: \$27,981.52 (- 10%). Average Fines: \$196.49 (- 9%).

¹Includes carry over of 65 cases from 1987-1988.

Table RS.12: Recorded Violations, 1988-1989

	Prosecutions	Convictions	% Convicted	Warnings	Total Offences	% Inc/Dec ¹
Liquor Control	854	823	96	5	904	+ 17%
Wildlife	656	493	82	244	900	+ 7%
Fisheries	778	711	97	234	1,012	+ 41%
Provincial Park	344	307	92	381	725	+ 46%
Highway Traffic	190	167	88	64	254	- 14%
Migratory Birds	44	29	71	12	56	- 13%
Off Road Vehicle	33 ²	27	88	31	64	+ 42%
Fires Prevention	31	29	94	31	62	- 18%
Environment	28 ³	27	93	8	36	+ 50%
Criminal Code	26	14	54	3	29	+ 61%
Forest	7	6	88	22	29	+ 7%
Small Vessels	3	3	100	0	3	+ 100%
Water Rights	3	3	100	1	4	+ 100%
Petty Trespass	1	1	100	1	2	+ 100%
Crown Lands	0	0	0	5	5	- 69%
Subtotals	2,998	2,640	87%	1,087		
Total		4,085			4,085 ⁴	+ 20%

Fines: \$248,373.64 (+ 16%). Warnings: 1,097 (+ 13%). Evictions: 311 (+ 64%).

Costs: \$65,535.72 (+ 16%). Prosecutions: 2,998 (+ 23%). Trespass (Forestry): 13 (+ 86%).

¹Compared to fiscal year 1987-1988.

²Includes violations under the former *Snowmobile Act*.

³Includes violations under the former *Clean Environment Act*.

⁴Includes 361 offences carried over from 1987-1988.

Table SM.1: Land Description Services

Activity	1987-1988	1988-1989
Requests from Government and Private Sources	387	544
Legal Descriptions Prepared	335	532
Area Calculations	46	93
Right-of-Way Agreements	0	43
Survey Requirements	8	10
Ducks Unlimited Agreements	7	7
Mines and Minerals Reports	58	41
Consents and Orders of the Minister	38	32

Table SM.2: Manitoba Geographical Names Program

Activity	1987-1988	1988-1989
Requests for Toponymic Data	959	1,088
Geographical Name Decisions	42	156
Mapping Manuscripts / Publications Edited	93	154
Supplementary Name Location Maps Compiled	21	11
Commemorative Names Certificates Issued	273	153

Table SM.3: Drafting Activities

Activity	1987-1988	1988-1989
Plans of Survey	165	61
Township Diagrams	29	36
Plan Revisions and Memorials	319	277

Table SM.4: Map Distribution

Activity	1986-1987	1987-1988	1988-1989
Number of Customers	12,789	13,496	13,548
Map Distribution	52,255	53,993	62,687
New Photographs	12,464	6,868	8,237
Photomechanical Products	37,297	28,496	32,900

Table WA.1: Approvals

Waterway Opening Investigations	563
Crown Land Use Investigations	632

Table WA.2: Hydroelectric Power Generation

	1987	1988
Water Power Rentals	\$31,447,461.40	\$23,690,563.84
Land Rentals	\$ 473,082.38	\$ 473,082.38
Total	\$31,920,543.78	\$24,163,646.22
Total Power Production (kilowatt-hours) associated with above charges	19,393,358,260	15,464,304,170

Table WA.3: Water Supply for Existing Power Developments on Rivers

River	Average Flow	Percentage of Long-term Average
Winnipeg River (Slave Falls)	468 m ³ /s	56.0%
Nelson River (Kelsey)	1,161 m ³ /s	52.3%
Saskatchewan River (Grand Rapids)	311 m ³ /s	52.8%

Table WA.4: Water Supply for Existing Power Developments on Lakes

Lake	Approved Range	Levels		Outflows	
		Low	High	Low	High
Lake of the Woods	321.9 m to 323.5 m	March 322.18 m	October 323.05 m	June 98.3 m ³ /s	December 424 m ³ /s
Lake Seul ¹	353.0 m to 357.2 m	March 354.47 m	October 356.78 m	April 0.00 m ³ /s	October 411 m ³ /s

¹The flow into Lac Seul through the Lake St. Joseph Diversion averaged 54.2 m³/s in 1988.

Table WA.5: Requests for Use of Crown Land, 1988-1989

Nature of Requests	Number	Parcels Involved
Lands Within Water Power Reserves	62	118
Lands Within the Operation of Water Power Licences	43	52
Crown Land Outside of Water Power Reserves/Licences	194	462
Total	299	632

Table WA.6: Water Power Development to December 31st 1988

Owner	River	Plant Name	Normal Head in Metres	Installed Capacity in Megawatts	
				Present	Ultimate
City of Winnipeg	Winnipeg	Point du Bois	14.02	78.33	78.33
City of Winnipeg	Winnipeg	Slave Falls	9.14	71.62	71.62
Manitoba Hydro	Winnipeg	Seven Sisters	18.59	149.20	149.20
Manitoba Hydro	Winnipeg	Great Falls	17.07	125.33	125.33
Manitoba Hydro	Winnipeg	Pine Falls	11.28	85.05	85.05
Manitoba Hydro	Winnipeg	McArthur	7.01	59.68	59.68
Manitoba Hydro	Laurie	No. 1 Site	16.76	5.22	5.22
Manitoba Hydro	Laurie	No. 2 Site	16.76	5.22	5.22
Manitoba Hydro	Nelson	Jenpeg	7.32	167.10	167.10
Manitoba Hydro	Nelson	Kelsey	15.24	219.32	313.32
Manitoba Hydro	Nelson	Kettle	30.02	1,253.28	1,253.28
Manitoba Hydro	Nelson	Long Spruce	24.38	1,007.10	1,007.10
Manitoba Hydro	Saskatchewan	Grand Rapids	38.10	447.60	447.60
Total				3,674.05	3,768.06

Table WA.7: Activities in Administering *The Water Rights Act*, 1988-1989

Activity	Surface Water	Groundwater
Applications Filed for Expired Licence Renewal	25	7
Other Applications Filed	102	66
Licences Completed and Sent for Acceptance	77	43
Actual Licences Issued	(55)	(30)
Domestic (including Stockwatering)	3	4
Agricultural	4	3
Municipal	1	4
Industrial (including Mining Operations)	1	3
Irrigation (including Wild Rice Production)	21	11
Air Cooling and Heating	0	5
Flood Control	5	0
Fish Raising	0	0
Fur Trapping	1	0
Thermal Electric Generating	2	0
Waterfowl Conservation	17	0
Complaint Investigations	11	4

Table WA.8: Summary of Water Control Works, 1988-1989

Program	Region					Total
	Interlake	Eastern/ Northwestern	South Eastern	South Western	Western/ Northwestern	
Maintenance of						
- Water Supply & Conservation Facilities	\$ 10.8	\$ 6.9	\$ 27.3	\$ 20.9	\$ 143.4	\$ 209.3
- Flood Damage Reduction	229.6	165.2	96.9	—	14.5	506.2
- Provincial Waterways	887.8	208.6	1,279.3	33.6	715.2	3,124.5
- Soil Drift Removal	75.5	37.8	481.7	—	—	595.0
Provincial Waterway Reconstruction	248.9	286.1	176.1	—	208.9	920.0
Bridge Replacement Program	70.3	71.7	312.0	—	63.0	517.0
Washow Bay Agricultural Enhancement Project	393.7	—	—	—	—	393.7
Pasquia Polder III	—	—	—	—	307.3	307.3
Upgrading Town Dykes	—	—	400.1	108.4	1,614.1	2,122.6
Carman Diversion	—	—	15.6	—	—	15.6
R.M. & Town of Gimli Flood Protection	87.2	—	—	—	—	87.2
Cooks Creek Agricultural Activity Enhancement	—	556.2	—	—	—	556.2
Total	\$2,003.8	\$1,332.5	\$2,789.0	\$162.9	\$3,066.4	\$9,354.6

Table W1.1: Hunting Licences Sold, 1988-1989

Type of Licence	Fee	Number Sold	Revenue
Game Bird			
Resident of Manitoba	\$ 7.00	39,191	\$203,584.50
Non-resident (Canadian)	45.00	817	36,411.00
Non-resident (Non-Canadian)	85.00	4,466	377,573.00
Wild Turkey			
Resident of Manitoba	10.00	586	5,860.00
Moose			
Resident of Manitoba	30.00	7,134	211,566.00
Non-resident (Canadian)	250.00	7	1,750.00
Non-resident (Non-Canadian)	300.00	91	27,300.00
Elk			
Resident of Manitoba	30.00	2,058	61,740.00
Woodland Caribou			
Resident of Manitoba	30.00	354	10,618.00
Black Bear			
Resident of Manitoba	12.00	2,651	30,740.50
Non-resident (Canadian)	50.00	20	1,000.00
Non-resident (Non-Canadian)	100.00	862	85,833.00
Deer			
Resident of Manitoba	17.00	44,710	738,878.50
Non-resident (Canadian)	80.00	317	25,360.00
Non-resident (Non-Canadian)	100.00	268	26,777.50
Timber Wolf			
Non-resident (Canadian)	25.00	1	25.00
Non-resident (Non-Canadian)	50.00	2	100.00
Total Licence Sales			
Resident of Manitoba		88,684	1,262,987.50
Non-resident (Canadian)		1,162	64,546.00
Non-resident (Non-Canadian)		5,689	517,583.50
Total		95,535	1,845,117.00
Replacement	Variable	320	973.00
Wildlife Certificates	8.00	63,995	482,612.50
		\$159,850	\$2,328,702.50

Table WI.2: Hunting Licence Sales and Revenue

Year	Game Birds		Big Game		Wildlife Certificates		Total Licences & Certificates	
	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue
1979-1980	59,783	\$440,639.25	48,250	\$ 539,079.50	77,855	\$157,039.00	185,888	\$1,136,757.75
1980-1981	58,091	460,939.75	60,505	666,291.25	83,022	167,673.00	201,618	1,294,904.00
1981-1982	56,203	474,355.50	66,570	713,353.25	83,998	169,719.00	206,771	1,357,427.75
1982-1983	51,618	621,183.00	66,711	1,081,211.50	81,225	207,131.50	199,554	1,909,526.00
1983-1984	44,731	697,294.50	64,062	1,134,739.50	75,119	266,116.50	183,912	2,098,150.50
1984-1985	38,826	565,929.00	59,406	1,158,430.00	68,233	309,957.00	166,465	2,034,316.00
1985-1986	35,342	588,487.00	52,541	1,066,958.00	62,607	409,699.00	150,490	2,065,144.00
1986-1987	39,141	691,140.50	53,537	1,101,829.00	64,615	422,833.00	157,293	2,215,802.50
1987-1988	39,381	715,171.50	58,583	1,201,819.50	66,782	503,692.50	164,746	2,420,683.50
1988-1989	37,060	623,428.50	58,795	1,222,661.50	63,995	482,612.50	159,850	2,328,702.50

Table W1.3: Wildlife-based Revenues, 1988-1989

Type of Licence	Revenue
Hunting Licences	
Wildlife Certificates	\$ 482,612.50
Game Bird Licences	617,568.50
Wild Turkey Licences	5,860.00
Black Bear Licences	117,573.50
Replacement Licences	973.00
Caribou Licences	10,618.00
Deer Licences	791,016.00
Elk Licences	61,740.00
Moose Licences	240,616.00
Timber Wolf Licences	125.00
Total	\$2,328,702.50
Commercial Licences	
Trapper Licences	\$ 59,905.50
Fur Dealer Licences	3,125.00
Tanner Licences	75.00
Taxidermist Licences	1,700.00
Shooting Preserve Licences	600.00
Dog Trainer Licences	923.00
Game Bird Farm Licences	2,100.00
Amphibian/Reptile Licences	1,878.00
Guide Licences	17,280.00
Total	\$ 87,586.50
Fur Royalties	\$ 81,699.00
Miscellaneous Revenue	\$ 14,065.40
Total	\$2,512,053.40

Note: Revenues are based on receipts applicable to licence and fur years rather than to the fiscal year.

Table W1.4: Quantity Produced, Average Pelt Price, Value of Production and Provincial Royalty Paid, by Species, for the Year Ending August 31st 1989

Species	Quantity	Average Price	Value	% of Total Value	Royalty per Pelt	Royalty
Badger	111	\$ 9.50	\$ 1,055.00	0.1	\$ 1.00	\$ 111
Bear	661	68.50	45,279.00	2.0	2.00	1,322
Beaver	16,936	14.00	237,104.00	10.5	1.00	16,936
Coyote	2,971	22.00	65,362.00	2.9	2.00	5,942
Ermine	6,439	2.25	14,488.00	0.6	0.10	644
Fisher	1,919	95.50	183,265.00	8.1	3.00	5,757
Fox, Blue	0	16.50	0.00	0.0	2.00	0
Fox, Cross	260	21.25	5,525.00	0.2	2.00	520
Fox, Red	3,325	11.25	37,406.00	1.7	2.00	6,650
Fox, Silver	51	91.00	4,461.00	0.2	2.00	102
Fox, White	212	16.50	3,498.00	0.2	1.00	212
Lynx	406	245.00	99,470.00	4.4	10.00	4,060
Marten	9,217	81.00	746,577.00	33.0	2.00	18,434
Mink	12,514	52.00	650,728.00	28.8	1.00	12,514
Muskrat	40,457	1.40	56,640.00	2.5	0.10	4,046
Otter	1,447	42.50	61,498.00	2.7	1.50	2,171
Raccoon	1,164	10.75	12,513.00	0.6	1.00	1,164
Squirrel	9,576	0.75	7,182.00	0.3	0.05	479
Wolf, Timber	193	95.00	18,335.00	0.8	2.00	386
Wolverine	50	177.00	8,850.00	0.4	5.00	250
Total			\$2,259,416.00			\$81,699

Table W1.5: Number of Open Area and Registered Trappers and the Estimated Value of Manitoba Wild Fur Production for the 12-month Period Ending August 31st 1989

Year	Open Area Licences Sold	Registered Trapline Permits Sold	Production Value
1979-1980	12,809	3,627	\$9,615,604.00
1980-1981	13,327	3,425	8,240,619.00
1981-1982	13,072	3,187	5,564,491.00
1982-1983	13,938	3,110	4,313,572.00
1983-1984	12,110	2,927	3,783,562.00
1984-1985	12,917	2,974	4,764,525.00
1985-1986	11,926	2,917	5,061,209.00
1986-1987	12,302	2,745	8,070,118.00
1987-1988	11,730	2,993	5,393,731.00
1988-1989	7,692	2,498	2,259,416.00

Note: In 1981-1982 the departmental fur year was changed to the 12-month period ending August 31st. The information for all previous years is based on the 12-month period ending September 30th.

Section 16

Directory

Legislation of the Department

The Boating Restriction Regulations.

Under the *Canada Shipping Act*.

The Conservation District Act.

The Crown Lands Act.

Except Sections 8, 9, 12, 14(1), 20, 22, 23, 24, 26, 28, 31-35, insofar as they relate to the administration of Crown lands which may be designated by the Minister of Natural Resources as agricultural Crown lands, and *Manitoba Revised Regulation C340 - R1* and amendments thereto.

The Dutch Elm Disease Act.

The Dyking Authority Act.

The Ecological Reserves Act.

The Fires Prevention Act (Part 1).

The Fisheries Act (Canada).

The Fisheries Act (Manitoba).

The Fishermen's Assistance and Polluters' Liability Act.

The Forest Act.

The Ground Water and Well Water Act.

The International Peace Garden Act.

The Lake of the Woods Control Board Act.

The Manitoba Fishery Regulations.

Made pursuant to Section 34 of *The Fisheries Act (Canada)*.

The Manitoba Habitat Heritage Act.

The Manitoba Natural Resources Act.

The Manitoba Natural Resources Development Act.

Except with respect to Channel Area Loggers Ltd., Moose Lake Loggers Ltd. and Manitoba Mineral Resources Ltd.

The Manitoba Natural Resources Agreement Amendments Act.

The Migratory Birds Convention Act and Regulations.

The Provincial Park Lands Act.

The Rivers and Streams Act.

The Surveys Act (Part II).

The Water Commission Act.

The Water Resources Administration Act.

The Water Power Act.

The Water Rights Act.

The Water Supply Commissions Act.

The Wild Rice Act.

The Wildlife Act.

Except that portion of Section 89(e) that applies to compensation for damage to crops caused by wildlife except as it pertains to migratory waterfowl.

Departmental Directory

Minister's Office

314 - Legislative Building

450 Broadway

Winnipeg, Manitoba

R3C 0V8

Deputy Minister's Office

314 - Legislative Building

450 Broadway

Winnipeg, Manitoba

R3C 0V8

Assistant Deputy Ministers' Offices

800 - 1495 St. James Street

Winnipeg, Manitoba

R3H 0W9

1577 Dublin Avenue

Winnipeg, Manitoba

R3E 3J5

Administrative Services Division

500 - 191 Broadway

Winnipeg, Manitoba

R3C 4B2

Financial Services

Accounts Payable

Budget Services

Internal Audit

Revenue Accounting

Wildlife/Fisheries Licensing

Minister 945-3730

945-3711

Executive Assistant 945-5064

Special Assistant 945-1041

Secretary 945-4071

Deputy Minister 945-3785

945-3982

Secretary 945-3785

Asst. Deputy Minister 945-6829

Secretary 945-6828

Asst. Deputy Minister 945-6826

Secretary 945-6095

Executive Director 945-4056

945-4178

Secretary 945-4056

945-4835

Director 945-4187

Supervisor 945-4247

Supervisor 945-4000

Manager 945-3993

Supervisor 945-4234

Supervisor 945-1399

Human Resources	Director	945-2808
Affirmative Action	Co-ordinator	945-2810
Development and Training	Manager	945-6776
Occupational Health & Safety	Co-ordinator	945-2537
Payroll Services	Supervisor	945-2812
Personnel Services		945-8863
Operational Support	Chief	945-4170
Systems	Chief	945-4232
Communications, Economics and Planning Branch	Director	945-6658
201 - 1495 St. James Street	Secretary	945-6662
Winnipeg, Manitoba		945-6786
R3H 0W9		
Communications		
Education	Head	945-6783
Media & Community Relations	Head	945-6798
Economics	Chief	945-2305
Land Use Planning	Chief	945-6661
Resource Planning	Chief	945-6656
Conservation Districts Authority	Executive Director	945-4948
330 Graham Avenue		
Winnipeg, Manitoba		
R3C 4A5		
Engineering and Construction Branch	Director	945-7484
1567-1577 Dublin Avenue	Secretary	945-7442
Winnipeg, Manitoba		
R3E 3J4		
Design Services Division	Chief	945-7479
Municipal Engineering Division	Project Manager	945-7462
Project Management Division	Chief	945-7488
Support Services Division	Chief	945-7473
Technical Services Division	Chief	945-7479
Geotechnical	Head	945-6016
Hydraulic	Head	945-7474
Internal Support Systems	Head	945-6012
Sewer and Water	Head	945-7479
Structural	Head	945-7466
Eastern Region (Floodway Office)	Regional Engineer	945-0168
Junction, Trans-Canada Highway and Red River Floodway		
Interlake/South-Central Region	Regional Engineer	945-7481
1577 Dublin Avenue		
Winnipeg, Manitoba		
R3E 3J5		
Southwestern Region	Regional Engineer	476-2305
Neepawa Building		
333 Mountain Avenue		
Neepawa, Manitoba		
R0J 1H0		

Western Region Regional Provincial Building 27 Second Avenue S.W. Dauphin, Manitoba R7N 3E5	Regional Engineer	638-9111
Fisheries Branch 101 - 1495 St. James Street Winnipeg, Manitoba R3H 0W9	Director Secretary	945-7814 945-6640
Commercial Fishing	Chief	945-7805
Enhancement	Chief	945-7792
Fish Culture	Head	945-7789
Sport Fishing	Chief	945-7803
Eastern/Southeastern Region Provincial Building 20 First Street South Beausejour, Manitoba R0E 0C0	Regional Manager	268-1411
Interlake Region Industrial Park Complex Box 40 Gimli, Manitoba R0C 1B0	Regional Manager	642-8724
Northeastern Region Provincial Building 59 Elizabeth Drive Thompson, Manitoba R8N 1X4	Regional Manager	778-4411
Northwestern Region Provincial Building 3rd Street and Ross Avenue Box 2550 The Pas, Manitoba R9A 1M4	Regional Manager	623-6411
Southwestern Region Agriculture Extension Centre 1129 Queens Avenue Brandon, Manitoba R7A 1L9	Regional Manager	726-6449
Western Region Provincial Building 27 Second Avenue S.W. Dauphin, Manitoba R7N 3E5	Regional Manager	638-9111
Forestry Branch 300 - 530 Kenaston Boulevard Winnipeg, Manitoba R3N 1Z4	Director Secretary	945-7998 945-7997
Canada/Manitoba Forest Renewal Agreement	Provincial Manager	945-3191
Forest Management	Chief	945-7950

Forest Protection and Dutch Elm Disease	Chief	945-7867
Silviculture	Chief	945-7994
Clearwater Provincial Forest Nursery Box 2550 The Pas, Manitoba R9A 1M4	Manager	624-5769
Pineland Provincial Forest Nursery Box 45 Haddashville, Manitoba R0E 0X0	Manager	426-5235
Eastern/Interlake Region Industrial Park Complex Box 40 Gimli, Manitoba R0C 1B0	Regional Forester	642-8729
Northeastern/Northwestern Region Provincial Building 3rd Street and Ross Avenue Box 2550 The Pas, Manitoba R9A 1M4	Regional Forester	623-6411
Southeastern Region Fort Osborne Complex 139 Tuxedo Avenue Winnipeg, Manitoba R3N 0H6	Regional Forester	945-7261
Western/Southwestern Region Provincial Building 27 Second Avenue S.W. Dauphin, Manitoba R7N 3E5	Regional Forester	638-9111
Lands Branch	Director	945-6655
700 - 1495 St. James Street Winnipeg, Manitoba R3H 0W9	Secretary	945-6654
Indian Claims	Manager	945-2284
Land Administration	Chief	945-6652
Leases and Permits	Supervisor	945-6767
Sales	Supervisor	945-6098
Land Appraisal / Special Projects	Chief	945-6823
Land Claims	Manager	945-2284
Recreational Land Development	Development Officer	945-4222 945-6819
Registry	Chief	945-6779
Wild Rice	Chief	945-6822

Eastern Region Provincial Building 20 - 1st Street South Beausejour, Manitoba R0E 0C0	Land Manager	268-1411
Interlake Region Box 1800 Gimli, Manitoba R0C 1B0	Land Manager	642-8719
Northeastern Region 59 Elizabeth Drive Thompson, Manitoba R7N 3E5	Land Manager	778-4411
Northwestern Region Box 2550 The Pas, Manitoba R9A 1M4	Land Manager	623-6411
Southeastern Region Box 2019 Steinbach, Manitoba R0A 2A0	Land Manager	326-4471
Western/Southwestern Region 27 - 2nd Avenue S.W. Dauphin, Manitoba R7N 3E5	Land Manager	638-9111
Parks Branch 258 Portage Avenue Winnipeg, Manitoba R3C 0B6	Director Secretary	945-4362 945-3834
Administration Leases and Permits	Chief Supervisor	945-4370 945-6773
Planning Site Planning & Design Systems and Management	Chief Head Head	945-4363 945-4382 945-4366
Technical Services	Chief	945-4364
Visitor Services Commercial Operations Heritage Properties Interpretation Marketing	Chief Head Head Head Head	945-4413 945-4406 945-4388 945-4375 945-4374
Eastern Region Provincial Building 20 First Street South Beausejour, Manitoba R0E 0C0	Park Manager	268-1411
Northwestern/Northeastern Region Provincial Building 3rd Street and Ross Avenue Box 2550 The Pas, Manitoba R9A 1M4	Park Manager	623-6411

Southeastern/Interlake Region Industrial Park Complex Box 40 Gimli, Manitoba R0C 1B0	Park Manager	642-8551
Southwestern Region Westbran Building 108 - 18th Street Brandon, Manitoba R7A 5A4	Park Manager	736-6306
Western Region Provincial Building 27 Second Avenue S.W. Dauphin, Manitoba R7N 3E5	Park Manager	638-9111
Whiteshell Region Park Office Rennie, Manitoba R0E 1R0	Assistant Park Manager	369-5246
Regional Services Branch 200 - 1495 St. James Street Winnipeg, Manitoba R3H 0W9	Director Headquarters Manager	945-0705 945-6647
Fire Program	Superintendent	945-7781
Hunter Safety, Guide Training and Problem Wildlife	Co-ordinator	945-6646
Regulatory & Legislative Services	Chief	945-6642
Eastern Region Provincial Building 20 First Street South Beausejour, Manitoba R0E 0C0	Manager Regional Superintendent	268-1411 268-1411
Interlake Region Box 1800 Gimli, Manitoba R0C 1B0	Regional Superintendent	642-8551
Northwestern Region 3rd Street and Ross Avenue The Pas, Manitoba R9A 1M4	Manager Regional Superintendent	623-6411 623-6411
Southeastern Region Building 3, 139 Tuxedo Boulevard Winnipeg, Manitoba R3N 0H6	Manager Regional Superintendent	945-7267 945-7268
Southwestern Region 108 - 18th Street Brandon, Manitoba R7A 5A4	Regional Superintendent	726-6299
Western Region 27 - 2nd Avenue S.W. Dauphin, Manitoba R7N 3E5	Manager Regional Superintendent	638-9111 638-9111

Whiteshell Region Rennie, Manitoba R0E 1R0	Regional Superintendent	369-5290
Surveys and Mapping Branch 1007 Century Street Winnipeg, Manitoba R3H 0W4	Director	945-6613
Data Management	Chief	945-5045
Field Surveys	Chief	945-6620
Geographical Names	Provincial Toponymist	945-1798
Land Description		945-8394
Map Distribution & Remote Sensing	Chief	945-6597
Mapping	Chief	945-6637
Water Resources Branch 1577 Dublin Avenue Winnipeg, Manitoba R3E 3J5	Director	945-6149
Hydrotechnical Services	Chief	945-6678
Hydrogeology	Head	945-7403
Hydrology	Head	945-6397
Water Management	Chief	945-6395
Special Services	Head	945-7404
Water Control & Conservation	Head	945-6496
Water Licensing and Approvals	Head	945-6495
Eastern/Northeastern Region	Regional Water Manager	945-6117
Interlake Region	Regional Water Manager	945-6490
Southeastern Region	Regional Water Manager	945-6151
Southwestern Region	Regional Water Manager	476-2305
Neepawa Building 333/341 Mountain Avenue Neepawa, Manitoba R0J 1H0		
Western/Northwestern Region	Regional Water Manager	638-9111
Provincial Building 27 Second Avenue S.W. Dauphin, Manitoba R7N 3E5		
Wildlife Branch 1495 St. James Street Winnipeg, Manitoba R3H 0W9	Director	945-7761
Biological Services	Chief	945-6809
Bioanalysis	Head	945-6816
Ecological Assessment	Head	945-6817
Commercial Management	Chief	945-7766
Fur	Head	945-7758
Habitat	Chief	945-7763
Management	Chief	945-6810

Regional Management	Chief	945-7755
Interlake Region	Regional Wildlife Specialist	642-8155
Industrial Park Complex		
Box 40		
Gimli, Manitoba		
R0C 1B0		
Northeastern Region	Regional Wildlife Specialist	778-4411
Provincial Building		
59 Elizabeth Drive		
Thompson, Manitoba		
R8N 1X4		
Northwestern Region	Regional Wildlife Specialist	623-6411
Provincial Building		
3rd Street and Ross Avenue		
Box 2550		
The Pas, Manitoba		
R9A 1M4		
Southeastern/Eastern Region	Regional Wildlife Specialist	945-7254
Fort Osborne Complex		
139 Tuxedo Avenue		
Winnipeg, Manitoba		
R3N 0H6		
Southwestern Region	Regional Wildlife Specialists	726-6448
Agriculture Extension Centre		726-6444
1129 Queens Avenue		
Brandon, Manitoba		
R7A 1L9		
Western Region	Regional Wildlife Specialist	638-9111
Provincial Building		
27 Second Avenue S.W.		
Dauphin, Manitoba		
R7N 3E5		